

University of Alberta

The Reported Health-Related Quality of Life of New Immigrants Who Utilize the
Services of Multicultural Health Brokers in Edmonton, Alberta

by

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fulfillment of the requirements for the degree Master of Nursing

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Canada

To my children Katja and Arvi-Pekka

Abstract

The purpose of this study was to describe and to compare the health status and health-related quality of life (HRQOL) of a group of immigrant and refugees (n=113) residing in Edmonton, Alberta. A secondary analysis of survey data and the EQ-5D (a generic HRQOL instrument) collected by Multicultural Health Brokers were used in this study. There were significant differences in reported health status between immigrants and refugees ($p < 0.001$). Sixty-five percent of the subjects reported moderate or extreme problems in the anxiety or depression dimension of the EQ-5D Index ($p < 0.001$); these problems were more prevalent among refugees ($p < 0.001$). The results suggest that there is a requirement for targeted mental health programs and cultural mediators to respond health needs of immigrants and refugees.

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Chapter 1 Introduction

In Canada, immigrants constitute a large and dynamic segment of our population. They have been important to the economic and social development of Canadian society. However, the diversity of nationalities, cultural traditions and health practices is a challenge for health care providers in delivering appropriate and effective programs and care. Immigrants' health beliefs and practices, and the knowledge acquired in their former countries, can be very different from those prevalent in Canada. Consequently, health care providers may find it difficult to understand the needs and concerns of their immigrant clients in order to offer the best possible services. In fact, a lack of culturally sensitive and responsive services in Canada has been demonstrated in recent studies (Chalmers & Hashi 2000; Kramer, Ivey, & Ying, 1999).

The proportion of the immigrant population in Canada has steadily increased from 16.1% in 1991 to 18.4 % in 2001 (Statistics Canada, 2004). Every year since 1990, approximately 230,000 immigrants have arrived (Kessel, 1998). It is now the case that one in every five children in Canada is an immigrant or the child of immigrants (Kinnon, 1999).

In Edmonton, the number of immigrants reported in the 2001 census was 165,235, comprising 17.4% of the total population (Statistics Canada, 2004). In 2003 Alberta was a destination for 15,738 immigrants, of whom 4,540 arrived in Edmonton. Of these, 62.5 % originated from ten source countries: China (13.5%), The Philippines (12.4%), India (11.5%), Pakistan (5.8%), United Kingdom (4.4%), Korea (3.7%), United States (3.4%), Afghanistan (2.8%), Colombia (2.7%), and the Sudan (2.3%) (Alberta Government, 2004). From this list it is evident that at least half of the new immigrants came from

developing countries. Most newcomers were between 20-44 years of age, 53% were female, and the most common native language spoken was Mandarin. Almost half of the newcomers arrived in Alberta without English language skills, but this number also included children. Almost 45 % of immigrants over 19 years of age had Bachelors, Masters or Doctorate degree education (Alberta Government, 2004).

According to the last two National Population Health Surveys (Statistics Canada, 2005, National Population Health Survey) new "economic class" immigrants are stated to be healthier than Canadians. Family and "refugee class" immigrants also go through medical checking, but their access to Canada is not limited to their health condition. Especially refugees who have a history in refugee camps, as detainees, or as victims of violence can have both mental and physical multiple health problems, which overall are documented to impact health status and quality of life if not treated or not treated thoroughly (Bagheri, 1992; Beiser, Devins, & Dion, 1997).

Health care providers in Canada have recognized the need to increase immigrant access to health care services and to provide culturally appropriate care. Barriers to access to health care faced by immigrants and refugees are various. Leduc and Proulx (2004) showed that language was the main barrier among immigrants to the utilization of health services, and that immigrants preferred services offered in their own language, if possible by providers of the same nationality. Making choices was related to increased learning about the health care system; and, in the early stages of immigration, choices were made based on experiences with analogous systems in their home country (Leduc & Proulx, 2004). It is natural that some level of maturation occurs related to both language

ability and system awareness within a certain time of migration, and the critical question is how these factors are affecting health before adaptation to the system,

In Canada and in Alberta, many governmental and non-governmental organizations provide programs that are targeted to facilitate newcomers' settling process. The programs are mainly related to employment, including language programs and training, education, housing, and health promotion. For example, in Edmonton, prenatal classes are offered in many languages and are funded by governmental health authority, but implemented by nongovernmental organizations (Capital Health, 2004, Programs and Services).

One of the most important non-governmental organizations in Edmonton is the Multicultural Health Brokers Co-operative (MCHBS). It is a non-profit community-based organization that provides culturally sensitive case management in order to facilitate newcomers' access to health care (Multicultural Health Brokers, 2004). Their main scope of services includes pre- and postnatal care, early childhood care, home visits and overall health promotion, provided by brokers who are from different ethnic communities. They also have counseling and interpreter services. The role of the MCHBS in community health is to mediate between health institutions and immigrant communities (Multicultural Health Brokers, 2004). Clients are referred to MCHBS by community health nurses or hospital staff, or they can contact MCHBS themselves. The programs are complementary to similar programs that are offered to Edmontonians by Capital Health, and therefore they are mainly funded by Capital Health. Annually approximately 1000 clients use the services of MCHBS (Multicultural Health Brokers, 2004).

Community health nurses have traditionally had a role in health promotion and disease prevention. Nowadays, based on primary health care principles, they are actively involved in community capacity building, and community development (Stamler & Yiu, 2005). Based on the fact that Canadian communities have culturally diverse populations, a variety of approaches and skills are required in order to promote health and prevent diseases. Community health nurses are interested in finding ways to provide culturally responsive health care services that meet the needs of culturally diverse populations. In order to define these needs, the knowledge concerning determinants of health, health status and health-related quality of life of the members of communities would provide tools for nurses' work. In Edmonton, community health nurses provide support and mentoring for the MCHBS, and they also refer their clients to the services of the MCHBS.

Kinnon (1999) conducted an environmental scan for Health Canada of relevant health research on immigrants available up to 1998. The review detailed several significant gaps in immigration health research. There were at least three areas of concern which are of particular relevance to the present thesis: there is now some evidence that the immigration experience itself may be a health determinant; secondly, there is a need for research to focus on immigrant subgroups such as refugees, old women, and others; and, there is also a need for more gender analysis.

The main project, of which this thesis is a part, interviewed immigrants to ascertain their pre-migration health history as well as the impact of their immigration experience upon their health-related quality of life. As well, the project recognized the

heterogeneity of the immigrant population and investigated health status for various subgroups such as refugees, and there was attention paid to gender issues.

Health Canada has adopted a "population approach" to health, which considers that a wide and varied set of factors affects health positively or negatively; health is defined broadly "as a state of complete physical, mental and social well-being" (Kinnon, 1999, p. 4). Socioeconomic and environmental conditions contribute to health or its absence, as do gender, cultural, biological, and health service delivery factors. Promotion of population health embraces health status and socioeconomic factors, as well as both environmental and personal factors that can affect immigrants' health. This is a relatively new concept, requiring that researchers place more emphasis on health determinants.

Kinnon's overview has shown that, up to as recently as 1999, there has been relatively little research into the effects on immigrant health of income, employment, kinds of occupations, family organization, or the living conditions of various immigrant subgroups (such as refugees, or persons from different regions). "Addressing a range of determinants and their effect on immigrants' health would be an important addition to the knowledge base for policy development related both to services for immigrants and to population health reflective of the needs of immigrant sub-populations" (Kinnon, 1999, p.17). Both culture and gender, for instance, are of increasing concern for policy makers and for practitioners.

There is already sufficient evidence at least to alert researchers that differences among groups of immigrants exist, as Dunn and Dyck (2000) showed, using factors of origin, income, and education. It has been observed as well that refugees have poorer

health status, due to their pre-migration experiences and also to less stringent screening, than do immigrants in general (Kinnon, 1999, p. 23).

There is research into some of the more common determinants of health but they vary in quality and generalizability. There is still little research into the health effects of physical and social environments, education, and working conditions, for example.

Kinnon (1999) saw this as critical, given that immigrants experience a decline in health status the longer they are in Canada. "Given the dearth of information on what is needed to maintain immigrants' health, it is not surprising that little has been written on action strategies for disease prevention and health promotion. In addition to overall perspectives, more attention is required on potentially high-risk immigrant sub-groups: low-income children and families; refugees from developing countries, women, older immigrants and those who are socially isolated." (Kinnon, 1999, p. 27).

Increasingly, there is awareness that not only pre-migration and the immigration experience itself may affect the health, particularly the mental health, of immigrants. The resettlement experience in Canada may also have a significant impact (Kinnon, 1999, p. 28). Future research should concentrate on the effects of acculturation and socialization, and on the impact of work availability, for example, to determine the positive and negative effects of integration into Canadian society upon immigrants.

It is anticipated that the present study, and its parent study, contribute to filling some of these gaps in understanding of what is actually happening to the health status of various immigrant subgroups. In order to define health care needs of immigrants and refugees and to specifically address services to where the gaps are, there is a need for knowledge about health status and health-related quality of life of these populations.

Information is also needed about the determinants of health that affect the health status and health related quality of life. This information would provide guidance for program planning in immigrant and refugee health care. Although the MCHBS has taken effective action to promote population health of different sub-populations, the results of this study provide identification of key stress points of immigrant and refugee health status and health related quality of life that offers an opportunity to create new community based health interventions.

Overall, recent immigrants are reported to be healthier than the Canadian population, but this advantage appears to diminish over time. However, within the immigrant population are numerous sub-groups with possibly very different health status. There is already evidence that refugees are less healthy than immigrants overall. For other significant sub-groups there are not yet enough data; these include people from developing countries, and those with lower incomes and higher unemployment (Kinnon, 1999, p.51).

There is suggestive evidence also that the experiences peculiar to immigration have an important, although possibly short-lived, effect on health. There is not yet sufficient data to determine the extent of these effects (such as torture, resettlement stress, and poverty) or to determine if, in fact, there are long-lasting outcomes for both physical and mental health. "Effective use of research resources requires a focus on immigrant sub-populations at greatest risk of poor health outcomes and most likely to benefit from targeted interventions." (Kinnon, 1999, p. 55).

Hyman (2001) agreed that most literature suggests that immigrants to Canada, especially the more recent ones, appear to have many health advantages over both the

Canadian-born population and earlier immigrants. This referred to both health status and the prevalence of such chronic conditions as cancer and heart disease. Moreover, much of the research suggested, but could not confirm, that health determinants such as poverty have a significant effect on health, especially for such vulnerable groups as children and immigrant women. Hyman's (2001) review also strongly suggested that immigrants underutilize Canadian health care services, particularly preventive and mental health care. The conclusion was that more research is needed to address several pressing questions. Is the health status of immigrants improving, or declining? Do health determinants change over time? Are there acculturation effects upon immigrant health?

Moreover, much of the research to date has had serious limitations. Population surveys such as the NPHS are often cross-sectional; they cannot be used to track changes over time. On the other hand, longitudinal studies can provide information on health status and health determinants over time (Hyman, 2001).

The data evaluated in this thesis contribute to a baseline analysis of the health of immigrants in the Edmonton area. The main study, of which this is a part, questioned the participants over a period of time, and creates a longitudinal data base that provides a more sophisticated analysis of the health care issues relevant to immigrants. The main study also provided data for an examination of possible changes in health determinants for immigrants. The present study contributes to the baseline evaluation of data concerning these determinants.

Canadian research on health determinants for immigrants has seldom dealt with the dramatically altered and increased heterogeneity of the immigrant population to Canada over the past five decades (Hyman, 2001). In 1957 the 10 major source countries

of immigrants to Canada were European. By 1997, eight of the 10 most important source countries were non-European. (Kessel, 1998). The present study analyzed data that distinguished among various ethnic and cultural groups. The baseline work will then facilitate ongoing analysis when future data are gathered.

In their overview of the 2003 National Symposium on Immigrant Health in Canada, Gold and DesMeules (2004) noted that Canada's ethnocultural profile is more diverse than that of almost every country in the world. However, at the same time, our knowledge is limited concerning the health patterns and health care needs of immigrants. The three primary areas for more research include: determinants of health, health status, and health services utilization. The present study focused particularly on health status of immigrants, within a larger and more complex study which will investigate all three areas of concern.

Newbold and Danforth (2003) emphasized the need for further research into self-reported health status and health-related quality of life because the immigrant population is very diverse; it exhibits greater variety than does the Canadian-born population in such areas as education, income and poverty. Similarly, review of the literature showed that there are significant differences in health status when comparing immigrants to non-immigrants. On arrival, immigrants overall are healthy but their health status – measured through self-reports – declines over time toward the Canadian average. The authors posit that this convergence masks significant differences among immigrant sub-groups, resulting possibly from sociodemographic and socioeconomic differences. They believed that further research will likely confirm that the immigrant population in Canada is characterized by dissimilar and unmet health needs. As they noted, immigrants may well

face numerous barriers to good health such as linguistic difficulties, discrimination, and lack of knowledge of the Canadian health system.

For the purpose of the present research, the authors' finding was an important guide. Apart from the most recent immigrants, newcomers generally report a lower health status across most factors than do the Canadian-born population.

Study Purpose

The purpose of the study was to describe the health status and to measure the reported health-related quality of life of immigrant/refugee populations residing in Edmonton prior to their using the services of the Multicultural Health Brokers (MCHBS). The results of this study are going to be used in the evaluation of the MCHBS program, specifically its ability to meet the health care needs of new immigrants and refugees, and the impact of the services provided on their health status and health-related quality of life.

Research Questions

The following research questions were addressed:

- 1) What is the reported health status and health-related quality of life of immigrants/refugees residing in Edmonton prior to their using the services of MCHBS?
- 2) Are there differences in the reported health status and HRQOL for different subgroups (defined by nationality, immigrant classification, age, gender, socioeconomic status, and the length of stay in Canada)?

Definition of Terms

Immigrant

"Immigrant" refers to a person born in a foreign country and who comes to settle in Canada as a permanent resident. Immigrants fall into three classes which may have differing health status and which may place different demands upon the Canadian health care system. These are defined as the "independent" or "economic" class (49.5%), the "family" class (37.4%), and the "refugee" class immigrant (12.5%). (Citizenship and Immigration Canada, 2002).

The economic class comprises skilled workers, entrepreneurs or investors. Their selection process includes a medical examination by a physician. Family class refers to people who are relatives of a Canadian or permanent resident who is at least 18 years of age and has agreed to provide for lodging, care and maintenance of said family members for a period up to 10 years. Thus, it is expected that these immigrants have a social support system on arrival. There are two types of refugees. Convention refugees include those who have immigrated because they fear persecution in their own country of origin

due to race, religion, nationality, membership in a particular social group or political opinion. Refugee claimants are those who have arrived in Canada and request refugee status. (Citizenship and Immigration Canada, 2002, Strategic Research and Review).

Health-Related Quality of Life (HRQOL)

HRQOL is a broader concept than a strict medical definition of health – such as the absence of disease or disability. It includes physical, emotional and social well-being dimensions, and considers both illness and well-being (health). (Brooks, Rabin, & de Charro, 2003, p. 283). The above definition is congruent with the World Health Organization (1948; 2004) definition of health as “a state of complete physical, mental and social well-being and not merely the absence of disease”. As well, HRQOL involves self-assessment by individuals of their own health status.

Significance of the Study

The study, particularly as a component of the larger research project, has contributed to the knowledge about the health status and the HRQOL of immigrants in the Edmonton area. This was a significant advance in addressing the scarcity of such knowledge not only locally but on a national scale.

The study results are going to be used directly in the assessment of how the MCHBS services are meeting the needs of the growing, and increasingly heterogeneous, immigrant population. As part of baseline research the study will contribute to the validation and the development of further MCHBS programs or services. A better understanding of the realities and complexities of the health status of recent immigrants will facilitate review of existing programs in light of recent data, contributing to any

necessary adjustments of focus or reach. From the literature it is apparent that there are considerable gaps in the health community's knowledge of the factors contributing to the overall status of immigrants.

In a small but important way the study aimed also to contribute to the development of longitudinal rather than simply cross-sectional analysis of immigrant health. This is a major concern in the literature. The study acquired information from immigrants about their health status and experience prior to and after migration.

Another important contribution will be the attention paid to immigrant subgroups such as refugees, women, and persons from different racial and cultural backgrounds. Again, the literature is clear that this is an area of research requiring urgent attention, particularly as the demographics of immigration to Canada have changed so dramatically over the last few decades.

Chapter 2 Literature Review

The literature review focuses on three content areas regarding immigrants and refugees in Canada: (1) the health status of immigrants and refugees; (2) their health-related quality of life; and, (3) the determinants of their health status and HRQOL.

The literature review was conducted using MEDLINE (1996-2005), CINAHL (1982-2005), HealthSTAR (1987-2004), ERIC (1966-2004), and PsycINFO (1985-2005). Articles were retrieved using the following MeSH headings and keywords: "immigrant health", "health-related quality of life", and "refugee health". In addition, the key words "multicultural", "transcultural" and "cross-cultural" were combined with "health", and all other key words.

Health Status of Immigrants and Refugees in Canada

International comparisons of health indicators have concluded that Canadians are ranked among the highest regarding healthy life expectancy, and low mortality rates (World Health Organization, 2004).

Recent studies have reported that new immigrants to Canada were healthier than the general Canadian population; in particular, the prevalence of chronic diseases was lower. (Ali, McDermott, & Gravel, 2004; Hyman, 2004; Perez, 2002). However, immigration has been documented to correspond with increased levels of stress (Beiser, Dion, & Gotowiec, 1995; Canadian Task Force on Mental Health Issues, 1988; Hulevat, 1996). Many epidemiological studies have reported that a high level of stress is related to many diseases like heart disease, high blood pressure, cardiovascular diseases and depression and anxiety. Stress can be caused by life situation, work, illness, or multiple

contributors of a socioeconomic nature (Krieger, 2000; Theorell, 2000). Experiences of racism and violence are examples of stress affecting one's life situation (Krieger, 2000). Also economic distress is strongly related to experience of stress.

The introduction to the recent National Symposium on Immigrant Health in Canada summarized the conclusions from various recent Health Canada reports and papers that ethnicity and migration are factors that determine health due to cultural, social, lifestyle and biological factors (Gold & DesMeules, 2003). It noted that Canada's ethnocultural profile is diverse. In 2001, about 5.4 million people, or 18.4% of the total population was born outside Canada. This proportion is higher than almost every country in the world. At the same time, our knowledge is limited about the health patterns and health care needs of immigrants. The authors argued for a national consensus about the state of knowledge of immigrant health and the setting of research priorities into three areas: determinants of health, health status, and health services utilization by immigrants. This awareness was the motivation for the national symposium on immigrant health – the need for more targeted policies and practices in order to reduce inequities.

Statistics Canada has administered several cycles of longitudinal surveys, at 2-year intervals, of a representative sample of the Canadian population about health status and health care needs. These surveys are called the National Population Health Surveys (NPHS); data were first collected in 1994. The surveys have a sample size of 17,000 individuals, aged 12 and over, who live in Canada. Depending on the cycle, the sample included 1500 – 2000 foreign born subjects (Statistics Canada, 2004).

Several researchers have conducted studies of immigrant health using the NPHS data: Dunn & Dyck, 2000; Hyman, 2004; Newbold and Danforth, 2003; Newbold, 2005.

The NPHS questionnaires included sections on health status, use of health services, risk factors, and demographic and socioeconomic status. The use of health services was measured, as well as behavioral risk factors such as smoking, alcohol use and physical activity. Demographic and socioeconomic information covered age, sex, education, ethnicity, household income and labour force status. Additional detailed questions dealt with actions taken to improve health, preferred weight, breast-feeding, nutrition, HIV/AIDS, smoking during pregnancy, social support, sexual health and road safety.

For the National Symposium, Gushulak and Williams (2004) addressed the national immigration health policy and suggested new directions. Current health policies and practices for immigrants are contained in the Immigration and Refugee Protection Act, rather than under national health legislation. As well, until recently, Canada's immigration health regime was solely directed at selecting or rejecting individuals on the basis of risk to public health or safety, or an excessive drain on health services. However, over the last three decades, the demography of immigration has changed greatly. The majority now comes from non-European countries. As well, the diversity of these immigrant groups has resulted in significant health disparities both between and within cohorts of immigrants and refugees. The authors noted that some countries are now using their immigrant medical examination as an instrument for population-based public health interventions such as health promotion or population-based disease treatment.

In 1999, Kinnon prepared a report for Health Canada titled, "*Canadian Research on Immigration and Health*" (Kinnon, 1999). It presented an overview of Canadian research into the health of immigrants, focusing on three broad areas which were and are of interest to Health Canada: promotion of population health, health system support and

renewal, and management of health risks. Studies of national policy interest from 1990 – 99 were included. Kinnon found considerable research on health determinants, but with some gaps. Other main areas had relatively little information yet. There was also some evidence that the immigration experience itself is a health determinant. In the discussion about changing demographics and trends, Kinnon noted that it is now the case, for instance, that one-quarter of immigrant children under age 12 are refugees.

Kinnon also found that few topics concerning immigrant health are examined in any extensive way. Although there has been much research into demographic trends and socioeconomic outcomes, much less research has occurred to describe the impact on immigrant health of such factors as employment/unemployment, income, living conditions, or family structures upon such immigrant subgroups as refugees, low-income families, and persons from different countries or regions of origin. "Addressing a range of determinants and their effect on immigrants' health would be an important addition to the knowledge base for policy development related both to services for immigrants and to population health reflective of the needs of immigrant sub-populations" (Kinnon, 1999, p. 19).

As others have done, Kinnon noted that the NPHS (1994-95) and subsequent surveys will provide significant longitudinal data as this large-sample, population-based survey will occur every 2 years for 2 decades. Already it has provided workable data on health status, health care utilization and health-related behavior. Unfortunately, the relatively small sample size (2,400) makes it difficult to analyze subgroup experiences.

There is a paucity of research into strategies to maintain immigrants' health, in such important areas as prevention of disease and promotion of health (Kinnon, 1999).

As well, there is a need for more study into possible high-risk subgroups such as refugees, low-income families and older immigrants (those whose health status may be similar to or worse than that of Canadian-born). There have been significant changes in immigration patterns over the last few decades. The majority of new immigrants is now from visible minorities, arrives from less developed countries, and is younger than the Canadian population taken as a whole.

There appears to be a widening gap between the socioeconomic realities and the health status of newer and long-term immigrants. Existing research, as well as the gaps in this research, shows a need to use scarce research resources wisely, focusing on immigrant subgroups that appear to be at the greatest risk of having poor health status, and who would benefit most from targeted allocation of health care resources (Kinnon, 1999, p.55).

Some of the areas which Kinnon saw as requiring priority research include: the health determinants for recent immigrants, action to improve the population health for vulnerable subgroups, and factors which lead to improved, more accessible health services.

Healthy Immigrant Effect

In 1996, three Statistics Canada researchers popularized the concept of the "healthy immigrant effect", which has subsequently colored much population health research on immigrants in Canada (Chen, Wilkins & Ng, 1996). The authors reviewed analyses on census data, vital statistics, and data from the Health and Activity Limitation Surveys. They assessed the health expectancy of immigrants compared with that of the Canadian-born population. They noted that "health expectancy" comprises both

mortality and disability into one indicator, which is widely accepted as the most comprehensive indicator of health status. From their analysis, they concluded that the "healthy immigrant effect" is responsible for the longevity and good health status of immigrants. However, they note that immigrants are a very heterogeneous group. Further study must be done on groups by country of origin. This observation was supportive for the purpose of the Edmonton research project.

In their companion study the three researchers compared the health status, health-related behaviors, and health care utilization of immigrants with the Canadian-born population (Chen, Ng, & Wilkins, 1996). It was based on self-reported data from the 1994-95 National Population Health Survey (NPHS). Health status was studied using factors of chronic conditions, disability and health dependency. Health care utilization involved factors including hospitalization, contact with doctors and dentists, and unmet needs for health services.

The authors concluded that the "healthy immigrant effect", already evident in other countries, also was significant in Canada. Immigrants who have lived in Canada for more than 10 years showed prevalence rates for several chronic conditions and long-term disability that were comparable to those obtaining in the Canadian-born population. As well, the use of health services was similar. The authors also concluded that, over time, the health behaviors of the Canadian-born population spread to and were adopted by immigrants

However, an analysis (Dunn & Dyck, 2000) had different conclusions from those of Chen and his colleagues. This more recent work on the 1994-95 NPHS data found that immigrants were more likely to report poor health than were non-immigrants, although

less likely to report unmet health care needs. These findings were explicable in part by the fact that "age was associated with poorer health status in the immigrant population, as is the case with older Canadians in general." (Hyman, 2001).

The impetus for a study by Parakulam, Krishnan, and Odynak (1992) was to investigate the view among some in Canada that immigrants had become a burden on social programs. Data came from Statistics Canada's General Social Survey (GSS) for 1985. The study controlled for age, sex, and region. For males, the health status of the foreign-born was better than for native-born in all age groups except for age 60 and over. For females, the foreign-born had better health than native-born among the young and adult ages. Generally, the findings suggested that immigrants are healthier than Canadian-born persons. However, these findings were "quite modest" and of limited generalizability.

Recently, Laroche analyzed whether Canada's immigrants and Canadian-born population differ in their health status and their utilization rates of health services (Laroche, 2000). Using data from the 1985 and the 1991 General Social Surveys (GSS) of the Statistics Canada Microdata files on Health and Social Support, Laroche concluded that there was no significant difference, and that there had been no change over time, when pooling the two data sets.

The author analyzed three measures of health status: perception of health, chronic illness, and limitations to long-term activity. Overall there was no significant difference between immigrants and non-immigrants. However, there were some observed differences among different population groups, a finding similar to that of Chen, Wilkins and Ng (1996).

Canada has relied historically upon immigration to ensure a growing population and a growing economy. There has been considerable research into the economic impacts of immigration but the area of immigrant health is a "virtually untouched area". Laroche sought to determine if immigrants are likely to pose a danger either to public safety or health, and whether they might be placing undue demands on health and social services. As she noted, the Immigration Act may ensure an acceptable level of health for immigrants entering the country, but does not address the issue of maintenance of health over time. The Act requires every applicant to undergo a successful medical examination, which involves five public policy criteria: risk to public health, possible reliance on the health or social services, response to medical treatment, public health oversight, and potential employability. Applicants may be rejected if they are assessed to pose a likely danger to public health or safety, or if their admittance could result in an excessive reliance on health and social services.

Laroche argued that addressing such issues would have important policy implications. Policy makers would be able to assess the impact of immigration on the health-care system, analyze the accessibility of such services, the efficiency of the health-screening processes for immigrants, and also to forecast the economic potential of immigrants as it could be affected by their health status.

In 2001 Hyman reviewed research into the health status and health determinants of immigrants. In particular, she examined the evidence for the "healthy immigrant effect" (Hyman, 2001). This is the observation that immigrants have better health on arrival than Canadian-born, but that their health deteriorates and converges over time with that of non-immigrants. A significant finding was that, contrary to popular belief,

the research does not support that immigrants make excessive demands on health care services. Instead, immigrant usage patterns are similar to those of Canadian-born. In fact, there is some evidence that immigrants underuse resources, especially preventive and mental health services. Hyman's conclusion was clear. More research is required in order to address several pressing questions: whether the health status of immigrants is improving, how do the health determinants change over time, and are there acculturation effects upon health?

Some of Hyman's other conclusions were pertinent to the research in question. For instance, most research to date has described health patterns without relating them to health in the country of origin. It is a given that immigrants, particularly in Canada, are not homogeneous either to national origin or to time in country. They are in fact very heterogeneous. As well, much research to this point has relied on population surveys. These present a major concern in that they are not cross-sectional, and thus cannot show changes over time. On the other hand, longitudinal studies avoid this problem. As well, multi-method studies combine quantitative and qualitative methods of data collection, and can be very revealing of the extent of a health problem within an immigrant community.

The healthy immigrant effect has not been conclusively determined. Methodological limitations to much of the survey research, such as cross-sectional studies, self-reported assessment, and small sample sizes of many immigration groups or sub-groups, has made it impossible to draw confident conclusions about whether the health status of immigrants has deteriorated over time. On the other hand, much research

into the determinants of health has not addressed the reality that Canadian immigrants are very heterogeneous.

Another study also has reviewed recent research, using Statistics Canada data to compare the health of immigrants to the Canadian-born population (Ali, McDermott, & Gravel, 2004). The authors acknowledged the healthy immigrant effect but also considered that immigrant experiences may adversely affect their health; these could include: economic strains, unemployment or underemployment, language barriers, and lack of understanding of Canadian institutions.

The Canadian Community Health Survey 2000/01 (CCHS) showed that immigrants, particularly the recent ones, report fewer chronic conditions than do the Canadian-born population. However, tuberculosis is one disease in which immigrants show higher infection rates. The more recent immigrants also reported lower rates of mental health problems (such as alcoholism or depression), whereas long-term immigrants report rates similar to those of the Canadian-born population.

Regarding health behaviors, the research indicated that immigrants demonstrate a mixed picture, but overall they are comparable to or better than Canadian health behaviors. Studies also show that immigrants overall have similar rates of health care utilization to non-immigrants in such areas as visits to general practitioners and overnight hospital stays. The authors posited that immigrants may use the health care system less because there are many potential barriers. However, three waves of NPHS data show that immigrants are not reporting different rates of unmet health care needs due to problems of availability or accessibility (Ali, 2003).

The authors wished to enlighten public debate about the notion that immigrants may be a burden to Canadian society (Ali, 2003). Their research indicated that such a view is unfounded, at least with regard to health. The data indicated that immigrants generally are in as good, or better, physical and mental health compared with the Canadian-born. Also, their health behaviors are similar to or better than Canadians, and their use of health services is similar to or even less frequent. These patterns have endured over several surveys and been dubbed the "healthy immigrant effect". However, the authors did note a trend concerning a gradient by length of time in Canada. The initial health advantage attenuates or even disappears among longer-term immigrants.

They concluded that longitudinal research over a large immigrant sample is now important in order to understand how the processes of immigration and acculturation affect health. This research investigates particular subgroups and is cross-culturally sophisticated (Ali, 2003).

Gee, Kobayashi and Prus (2004) also reviewed the recent evidence for the healthy immigrant effect. It is believed that the decline in health status over several years may be due to the adoption by the immigrants of the prevailing beliefs and lifestyle behaviors of Canadian-born population in such areas as smoking, alcohol usage, and dietary changes; these have resulted in a convergence of both health status and health care utilization between long-term immigrant and Canadian-born populations. This study used data from the 2000-01 Canadian Community Health Survey (CCHS). It found that the healthy immigrant effect applies to later mid-life immigrants (aged 45-64). This subgroup has better health than both mid-life immigrants who have been in Canada more than 10 years and the Canadian-born population. The authors concluded with a useful caution. It is

believed that cultural factors such as adherence to tradition may influence a person's willingness to report health problems. However, it is not well understood if, or how much, differences in culture or language affect such fundamental concepts as health and illness.

McDonald and Kennedy (2004) reviewed the evidence for the "healthy immigrant effect". Their research followed Frank (1995), and Dunn and Dyck (2000), in using the "population health" concept, which defines the main determinants of health status to be cultural, social and economic factors, rather than medical care or health utilization. The authors noted that a limitation of much of the research into immigrant health is its basis in a single cross-section of data. It is impossible to distinguish true convergence in health from unnoticed characteristics that may affect immigrants from different places and at different times. This study thus combined multiple cross-sections of data from the NPHS and CCHS in order to confirm the presence of the healthy immigrant effect.

The authors noted that the health of immigrants is important to both researchers and policy makers for at least two main reasons (McDonald & Kennedy, 2004). First of all, there are large numbers of immigrants; they constitute at least 18% of the population. Therefore, their health is a major determinant of general measures of population health, directly impacting issues of cost and adequacy of Canada's health care system. Secondly, the health of immigrants is a major factor in evaluating the benefits and costs of our immigration policy. Is Canada maximizing its returns from large-scale immigration?

The authors found "compelling" evidence for the healthy immigrant effect among recent arrivals. Both immigrant men and women are significantly less likely to have a

chronic health condition, and they continue to maintain this status even after many years in Canada. There is evidence, though, that the disparity in health status significantly decreases between foreign and native-born Canadians over time, even if slowly. They speculated whether immigrant health diminishes with years in Canada due to changes in social norms and increasing assimilation into the Canadian system. That is, immigrants will increasingly use the health system, and thus will be increasingly diagnosed with chronic conditions. They also cautioned that an immigrant's expectations of what constitutes "good" or "poor" health may evolve over time. This could be a fruitful area for new research (McDonald & Kennedy, 2004).

Newbold discussed self-rated health and the healthy immigrant effect (Newbold, 2005). The analysis was built upon the perspective of determinants of health in its exploration of the self-assessed health of immigrants to Canada. It drew from the longitudinal NPHS of Statistics Canada, and it used both descriptive and multivariate techniques. Newbold reviewed the literature for the healthy immigrant effect, and then posed the question of why immigrant health status deteriorates over time. The literature recognized that immigrants, by definition, move from one set of health risks, behaviors and constraints to a potentially very different environment that may include adverse health effects.

He concluded that the healthy immigrant effect may be more apparent than real. Rapid decline in health status may suggest changes in perceived health rather than in real health. Several processes may be at work. Immigrants may reevaluate their health status relative to their Canadian peers rather than to their country of origin; optimism may decline as the realities of the immigrant experience strengthen; and there may be

acculturation into the prevailing 'culture of complaint'. The conclusion was that additional research is required. The study found only mixed support for the healthy immigrant effect.

The next year Newbold continued his exploration of the health of immigrants. He studied the Canadian immigrant population from 1994/95 to 2000/01 using data from Statistics Canada's longitudinal NPHS, both descriptive and survival analyses (Newbold, 2005). He posited that the health status and health utilization patterns of immigrants may differ from those of non-immigrants for three reasons. There may be invisible barriers that limit immigrant access. Various ethnic or cultural forces may be at work, such as trust/lack of trust in Western medicine, reliance upon traditional medicine, education differences and gender roles. Thirdly, the restructuring of the Canadian health care system in the 1990s may have had a disproportionately negative impact upon newcomers to Canada. Newbold found that there is a rapid decline in the health status among recent arrivals, mirroring the healthy immigrant effect, and a concurrent increase in the use of health services. However, as this decline occurs well within the first 10 years, it may be due to changes in perceived health rather than real health.

Newbold drew policy implications from the findings. It is possible that the increased utilization of services may not be enough to counteract the decline in health status. This would indicate that the immigrant need for health care is not being met sufficiently.

Another paper also resulted from research involving Statistics Canada's NPHS, particularly Cycle 3 (1998/98). The authors' purposes were twofold: to evaluate immigrant health as measured by self-assessment and the Health Utilities Index-Mark 3

(HUI3); and, to compare the health status of immigrants to that of the Canadian-born population (Newbold & Danforth, 2003). Their concern was that relatively little research has been done into immigrant health. They cautioned that to assume an equality of health status between immigrants and Canadian-born is probably unrealistic, given that: there may be invisible barriers which limit access for immigrants, that the Canadian health system has been shaken up in the past decade, and that there may be difficulties in the provision of health care to the immigrant population. In both areas the authors were concerned to determine if differences in health status exist, and if so, whether the explanation is socioeconomic, sociodemographic, or involves lifestyle factors.

The research employed two methods: a descriptive account of health status; and, multivariate evaluation of the factors associated with health status. The authors concluded that their findings echo previous research into health determinants and health status of immigrants. Individuals with lower education and income, and the unemployed and the elderly, were more likely to be "unhealthy". Overall, immigrants reported worse health than Canadian-born counterparts. The conclusion also was that socioeconomic and sociodemographic facts had differing impacts on the health status of immigrants and non-immigrants. "Consequently, declining and poor health within the immigrant population may represent a combination of social, political, economic, and cultural factors, with poor socioeconomic status contributing to the decline in health." (Newbold & Danforth, 2003, p.1992).

Physical and Functional Health

Using data from the 1994/95, 1996/97, and 2000/01 cycles of NPHS, Newbold (2005) conducted a study with two aims: to evaluate the self-assessed health of the

immigrant population in Canada; and, to identify differences in self-assessed health of that population, and the factors associated with declining self-assessed health status. The data contained information about self-perceived health status, functional ability, chronic conditions, and behavioral risk factors; these were analyzed with respect to duration of residence and other personal attributes such as sex, age and income that may influence on the health status. These factors included age, arrival cohort, education level and gender. The sample consisted of 1305 foreign-born subjects, who were 20 years of age or older, and who were identified and followed through all the cycles of NPHS. Self-assessed health was categorized as: very good, good, fair, and poor. The results indicated that 10.1% of immigrants reported poor health, compared to 9.1% of the Canadian-born. Logistic analysis of the data showed that health status was not significantly different between immigrants and native-born; however, the native-born were at lower risk of transitioning to poor health over the study period.

Hyman (2004) reviewed current knowledge on the health of Canadian immigrants and examined the evidence for the "healthy immigrant effect", that suggested that the health of newcomers is better than the health of comparable Canadian-born. The study aimed to identify the determinants of health with respect to this phenomenon and also to include the literature on refugee populations. Key findings of the study indicated that the immigrants represent an extremely heterogeneous group regarding their source country, length of stay, category of migration, socioeconomic status, and how these factors are affecting life circumstances and health. Health status of recent immigrants is overall better than the Canadian-born population, but the difference levels off over time. However, the immigrants have higher levels of infectious diseases such as tuberculosis

and HIV/AIDS, and hepatitis and rubella among pregnant immigrants. The study shows higher rates of depression and alcohol dependence especially among new immigrants in some immigrant groups. Utilization of cancer screening programs is also lower among immigrants. The limitation of the study was that it did not indicate the differences between recent and long-stay immigrants.

Ali, McDermott and Gravel (2004) conducted data analysis of Statistics Canada's population surveys, including the National Population Health Survey and the Canadian Community Health Survey. The results showed that the health status of immigrants varied depending on the country of origin, but in general the physical and mental health status of immigrants was better than or equivalent to that of the Canadian-born population. However, certain subgroups reported worse health than Canadians. For example, immigrants contributed 57% of all Canadian tuberculosis cases in 1994. Health care utilization was correlated with the length of stay in Canada, being less among recent immigrants. The study limitations were that the questions were tested on the general population instead of being culturally adjusted, and also that those respondents who were less culturally integrated were not able to answer the questions in English or French and were thus excluded from the study.

Mental Health

The Canadian Task Force on Mental Issues Affecting Immigrants and Refugees (1988) found that risk factors included public attitudes toward immigrants and refugees, social isolation, unemployment and underemployment, and the inability to communicate in either English or French. Women were assessed to have a lower mental health status

than men. If the immigrants were adolescent or elderly at the time of migration, they were found to have increased risk of a poor mental health status.

Noh, Wu, Speechley & Kaspar (1992) conducted a cross-sectional study of depression among adult Korean immigrants in Toronto. Using the Depression scale of the Centre for Epidemiologic Studies, they found that gender was a significant predictor for depression. In the sample (N=860) a total of 2.6% of men and 6.7% of women reported depressive symptoms; these numbers were similar to those reported for the North American population.

Beiser and Hou (2001) examined the risk-inducing effects of unemployment and the protective effects of language acquisition on the mental health of Southeast Asian refugees resettling in Canada. This longitudinal, 10-year study was conducted in 1981, 1983, and 1991; it had a sample size of 608 subjects in the last cycle. Study findings indicated that initial depression was a strong predictor of depression at the end of the period, but also that the prevalence of depression declined from 6.48% in 1981 to 4.73% in 1983 and 2.27% in 1991. The decrease in prevalence was statistically significant at $p < 0.001$. As expected, the lack of English skills was related to feelings of isolation and increased depression. The authors also showed that people who were not engaged in the labour market during the early years of their resettlement, particularly refugee women, had a higher prevalence of depression at the end of the 10 year period. They concluded that language facility (English ability) had a protective effect on mental health and that unemployment was a potential risk factor for depression.

Using data from the 2000/01 Canadian Community Health Survey (CCHS), Ali et al. studied the mental health of immigrants (Ali, McDermott, & Gravel, 2004). The

purpose was to compare immigrants with the Canadian-born population in terms of depression and alcohol dependence. The study also considered whether the "healthy immigrant effect", already observed in the area of physical health, also applied to mental health. The researchers also sought to determine if the factors of place of origin, or ethnicity, and length of residence in Canada were related to variations in the mental health of immigrants. The sample size of the study was 92,379, between 15 and 75 years of age, and residing in Canada. The sample included 18,610 (20.1%) foreign-born persons. Results showed that recent immigrants (0-4 years) had lower rates of depression and alcohol dependence than did the Canadian-born population; however, the depression rates of the long-term immigrants (30+ years of residence) were the same as for Canadians. The differences between recent immigrants and the Canadian-born population remained even after adjusting the data for: age, gender, socioeconomic factors, language barriers, immigrants' higher unemployment rates, and for a lower sense of belonging to the local community. Although the survey was conducted in the respondents' own languages (if English or French was not understood), its biggest limitation was that it did not differentiate among the immigrant subgroups, such as refugees.

A recent study found that the prevalence rate for depression among elderly immigrants from Mainland China was higher than in the general population. The study was conducted in Calgary and included 444 randomly selected participants who were interviewed using the Chinese version of the Geriatric Depression Scale. Variables like chronic illnesses, poorer physical health, experiences of barriers to delivery of health

services, less adequate financial situation, and shorter residency in Canada were correlated with higher depression scores. Also, living alone was a risk factor (Lai, 2004).

Health Care Utilization and Health Behaviors

Health care services are targeted to intervene in three major stages of health/disease: (1) preventive care, including primary, secondary, and tertiary prevention; (2) curative care; and, (3) rehabilitation (Health Canada, 2004, Health Care). From the population health perspective, the methods of disease prevention include, for example: health promotion programs, screening programs, and specific practices like immunization programs.

In a literature review Janzen (1998) found evidence of underuse by immigrant women of screening programs; however, the author did not report closely on the numbers or characteristics of the study groups found in the literature. The study by Bryant, Bruno, Barton and Zumbo (2002) supported the hypothesis that immigrants underuse screening programs. They concluded that there is a difference between participation in screening programs between immigrant women and women from the general population. The study was conducted using logistic regression analysis from a sample of 416 drawn from the 1994 NPHS: immigrant women, single women and women with less education were over-represented among those who had never had a Pap-test. The main limitation of the survey was that it did not indicate if immigrants who could not understand English or French were included or excluded. Studies in the United States have reported higher prevalence of cervical cancer among specific ethnic groups and found that underuse or misuse of screening programs is strongly related to the fact of ethnicity (Lee, 2000;

McPhee, Bird, Davis, Ha, Jenkins, and Le, 1997; Tanjasiri & Sablan-Santos, 2001). Also socioeconomic status was a risk factor.

With regard to curative care, recent immigrants are documented to experience such barriers to use of health care services as language or unawareness of how the care system operates; these barriers result in underuse or misuse of the services (Kinnon, 1999). Roberts and Crockford (1997) have demonstrated the possible underuse of services through a review of hospital files. They compared the psychiatric diagnoses of Canadians of Asian origin who were admitted over a five-year period to the adolescent inpatient psychiatric unit in Calgary to their Canadian-born counterparts. The results showed that, at the time of admission, the Asian Canadian tended to be older and have more severe diagnoses than the Canadians. However, the study of Wen, Goel, and Williams (1996) indicated that immigrants in Ontario used less emergency care service but slightly more general practitioner service than their Canadian peers. This study did not differentiate immigrants by any characteristics such as place of origin, length of residence or language proficiency.

Socioeconomic status has been shown to be connected to utilization of screening programs. According to a study conducted by McPhee, et al. (1997), the barriers to use of screening programs were low level of education, unawareness, not being married, and not having regular contact with a physician, as well as recent immigration. Also, Tanjasiri and Sablan-Santos (2001) concluded that lower or non-existent screening practices were related to marital status (single), moderate income, and less education. The study about Korean immigrants in the US found that, in addition to unawareness of the importance of a Pap-test, language was a significant barrier to use of screening programs (Lee, 2000).

According to a Canadian study (Anderson, Benedet, Le Riche, Maticic, and Thompson, 1992), immigrant women who had less than 10 years residence and suffered from cervical cancer, were far more likely never to have had a pap-test (71%) compared to age-standardized Canadian-born women (34%).

From the still limited research literature, it can be concluded that the diversity of immigrant populations is not completely targeted in studies, regarding immigrant status, gender, age and ethnic and cultural background and how they might affect health status and health-related quality of life. A limitation of the studies was that they mainly measured the immigrant population as a whole, although large sample sizes provided the opportunity to obtain information about the sub-groups. The studies about "healthy immigrant effect" have limitations in defining who are the healthy; the knowledge about refugees and immigrant women from developing countries is contradictory to those findings, for example in terms of mental health (Hyman, Vu, & Beiser, 2000; Meleis, Lipson, Muecke, & Smith, 1998). Also, the national population health studies indicated that new immigrants are healthier than the general population, but none of the studies separated immigrants and refugees. The limited number of studies about refugees and new immigrants can be explained by scarcity of data collection instruments that are both culturally and linguistically appropriate as well as reliable and valid in these populations.

Health-Related Quality of Life (HRQOL) of Immigrants and Refugees in Canada

In most definitions, health is seen to be multidimensional and related to social context (Allen, 1983; Berkman & Kawachi 2000; Gottlieb & Rowat, 1987). Individuals

differ in the way they determine and value their health-related quality of life (Dasbach, 1991).

HRQOL and health status has been measured in Statistics Canada's NPHS surveys using the Health Utilities Index 3 (HUI3), which is a generic HRQOL instrument developed in Canada. HUI3 contains eight health-related attributes: vision, hearing, speech, mobility, dexterity, cognition, emotion, and pain/discomfort. All variables have five or six levels, resulting in 972,000 possible unique health states, obtaining values from -0.36 to 1.0 (Furlong, Feeny, Torrance, & Barr, 2001).

It is a challenge to operationalize HRQOL. In addition to World Health Organization's (1948) widely cited three-dimensional definitions including physical, social and emotional well-being, there are other definitions. For example, Aaronson (1988) and van Haan et al. (1993) defined four dimensions: physical, psychological, social health, including both qualitative and quantitative aspects, and functional health, which consists of self-care, functional abilities, mobility and action in social roles. The above-defined dimensions (World Health Organization, 1948, Aaronson, 1988) are widely utilized as a conceptual basis in many HRQOL measures (Kind, 2001).

The terminology used in measuring HRQOL varies in different instruments. Also, the variables of instruments are called items, domains, or dimensions, and they can have several subgroups, depending on the purpose, and the number of variables included in the instrument. (Brooks, Rabin, & de Charro, 2003). Two basic categories of the HRQOL measures are generic measures that are aimed to be used for all diseases, and disease-specific measures that are developed to deal with one disease or disease group (e.g. heart, lung) (Brooks, et al. 2003).

Newbold and Danforth (2003) have studied the health status and HRQOL of the immigrant population in Canada using the cross-sectional data of the 1998/99 NPHS. Their purposes were twofold: to evaluate immigrant health, measured by self-assessed health and by the HUI3, with respect to a set of indicators drawn from the determinants of health framework, along with duration of residence, origin and race; and, to compare the health status of immigrants to native-born Canadians. Total sample size consisted of 2058 immigrants over 12 years resident in Canada; they were interviewed by telephone in English, or in the language of the subject if possible (the HUI3 questionnaire is translated in French, Spanish, Portuguese, Chinese, Punjabi, and Italian). In addition, in-depth interviews were conducted with randomly selected members of each household. Duration of residence was divided into 0-4 years, 5-9, and 10+ years; the groupings of countries of origin were: America, Europe, and Other.

The results indicated that immigrants were more likely to report poor health status (2.5%) than Canadian-born subjects (1.6%), and they were also less likely to report better states of health. HUI3 results also showed that, in general, immigrants reported lower HRQOL than did non-immigrants. Although the immigrant population was less likely to report chronic conditions than native-born, immigrants who had lived in Canada over 10 years showed an increased likelihood of chronic conditions (Newbold and Danforth, 2003), indicating that immigrants who have lived in Canada 10 years or more, reported poorer health status than their Canadian counterparts. However, the results indicated that new immigrants were healthier than the Canadian-born population. Presumably, refugees and immigrant subgroups with language skill deficits were not included in the study, so

the research does not necessarily draw the whole picture of new immigrants' health status and HRQOL. Immigrant health by duration of residence is shown in Table 1.

Table 1

Immigrant Health by Duration of Residence (%). 1998/99

	Immigrants			Non-immigrant
	Duration of Residence			
	0 - 4 years (%)	5 -9 years (%)	10+ years (%)	(%)
Self-assessed health				
Poor	1.1	0.8	3.1	1.6
Fair	3.0	10.5	8.4	6.9
Good	21.8	24.0	29.2	25.0
Very good	40.0	38.1	37.2	41.1
Excellent	33.8	26.7	22.1	25.5
Chi-square value	50.03*			
HUI3 index score				
-0.36 - 0.4	0.9	0.6	5.4	3.7
0.4 - 0.7	1.7	3.1	8.5	6.9
0.7 - 0.9	12.8	19.1	13.0	13.6
0.9 - 1.0	49.3	40.0	48.4	44.2
1.0	35.4	37.2	24.6	32.4
N (unweighted)	262	257	1539	11,595
Mean	0.938	0.923	0.871	0.897
Chi-square value	110.19*			

Note. * Significant at $p < 0.05$

Newbold, K. B. & Danforth, J. (2003). Health status and Canada's immigrant population. *Social Science & Medicine*, 57, 1981-1995, p.1985.

Kopec, Williams, To, and Austin (2001) conducted a cross-cultural comparative study about health status in Canada using data from the NPHS of 1994/95. They examined differences in health status, as measured by HUI3, among seven cultural groups defined by place of birth and language. The sample size was 15,960 participants, who were interviewed by telephone survey. The study showed that age-standardized dysfunction was highest in French-Canadians and lowest in English-speaking

immigrants, who accordingly reported the highest proportion of respondents classified as health. The highest age-adjusted prevalence of emotional problems was in Asian immigrants (34.2%); the prevalence was lowest among English-speaking immigrants (23.0%). European, Asian and Hispanic immigrants reported higher rates of emotional problems than did English, French or bilingual Canadians, but fewer problems with pain. The study concluded that factors like socioeconomic status and chronic conditions do not explain the variations in the HUI3 across different cultural/ethnic groups in Canada. The study argued that the differences in the health status of different cultural and ethnic groups could not be explained by variations in the factors such as socioeconomic status and the existence of chronic conditions. The differences between the health status of the Canadian-born subjects and the immigrants might be explained, at least partly, by cultural factors such as reporting of pain, cognitive symptoms and emotional functioning. The authors stated that the main limitations of the study were the heterogeneity of the sample and the lack of a detailed classification of the immigrants (Kopec et al. 2001).

Determinants of Health and HRQOL of Immigrants and Refugees in Canada

Health professionals provide health care, and patients demand health care, with some health improvement goal, object or purpose in mind. Therefore, it is feasible to suppose that there is an interest in evaluating and measuring health outcomes. One quite popular way to measure health outcomes is to study them in terms of "quality of life". In its wider sense, quality of life consists of much more than health as a pure attribute. One can also assume that such determinants as income, education, occupation, housing, health behavior and social support contribute to the health status and well-being of the

individual. These are important variables in population level studies explaining the variations within a population and between its subgroups; and, to some degree, these determinants of health can be controlled at the societal level (Berkman & Glass, 2000).

Socioeconomic Status

Among population health advocates, there is an increasing interest in the relationship between socioeconomic factors and health (Lynch & Kaplan, 2000). The differences in morbidity and mortality between socioeconomic groups have been observed in many studies (Lynch, Kaplan & Shema, 1997; Link & Phelan, 1995). Studies of socioeconomic position measure occupation, income, and education and their impact on health (Lynch & Kaplan, 2000).

Abu-Laban, Derwing, Krahn, Mulder and Wilkinson (1999) studied the settlement experiences of refugees in Alberta by interviewing 616 government-sponsored and privately-sponsored refugees, who had been dispersed to seven Alberta host cities between 1992 and 1997. They found that 40% of the adults had completed some form of post-secondary education before arrival, 19% did not have high school diplomas, and 65% had some formal job training in their home country. Employment status of the immigrants reflected their income levels. At the time, the unemployment rate of the adult refugees was over two times (16%) as high the provincial average, and 57% of the employed adults considered themselves under-employed in their current jobs. Forty-three per cent of the adult refugees indicated their annual household income as below \$20,000; only 8% had annual household incomes of \$60,000 or more (Abu-Laban, et al., 1999). As a comparison, the Technical report by Capital Health (2000), which was based

on Federal census data in 1996, showed that the median annual household income in the Capital Health Region was \$49,500.

Other Canadian sources also provided evidence that new immigrants have lower income levels than the general population (Citizenship and Immigration Canada, 2002; Hyman, 2004) and according to NHPS, recent immigrants are twice as likely to be poor than Canadians in general (Beiser, Devins & Dion, 1997). Low economic integration was shown to increase depression in South Asian immigrants residing in Canada; and, reciprocally, depression predicted the higher risk of unemployment (Wickrama, Beiser, & Kaspar, 2002).

Health policy in Canada has increasingly been influenced by a concern for the social determinants of health. Frank has set out this perspective: "[T]he major determinants of health status, particularly in countries at an advanced stage of economic development, are not medical care inputs and utilization, but cultural, social and economic factors – both at the population and individual levels. The influence of these factors is ubiquitously manifested in profound social gradients in health status, which are surprisingly independent of diagnostic categories of illness, tending to persist across shifts in disease pattern and in hazardous exposures over time, and across societies (Frank, 1995, p. 162)".

Under the aegis of the Metropolis Project, Dunn and Dyck studied the social determinants of the health of immigrants in Canada. The Metropolis project is a large-scale study of immigration and integration in Canada, and includes "wellbeing" in several aspects of social life. Data were analyzed from Canada's National Population Health Survey (NPHS) (Dunn & Dyck, 2000). The authors' conceptual model was "population

health" or "social determinants of health". A synthesis of public health and social science literature, this perspective argued that the most significant inputs of health status are social and economic characteristics of individuals and populations; they are not medical care inputs or health behaviors such as smoking. Based on the logistic regression model results, they suggested that socioeconomic factors are more important for immigrants than for non-immigrants.

What little literature there is about the social determinants of health for immigrants is ambiguous. The authors reviewed Kinnon's overview of recent immigrant health research (1999), and concluded that most of it was descriptive, which sought to determine sociodemographic or socioeconomic trends. Little study has been done on the impact of immigrant health status upon such matters as employment, living conditions, and education. It is these descriptive studies which have found some evidence of the so-called "healthy immigrant effect". Researchers speculate that the effect may be due to the medical screening process for immigrant applicants.

Dunn and Dyck (2000) employed the NPHS 1994/95 to study the effect of social and economic factors on immigrants. They did not find the income difference between immigrants and Canadian-born to be significant, but immigrants living in Canada less than 10 years were overrepresented in the lowest and lower middle income quintiles. Logistic regression suggested that socioeconomic factors could be more significant for immigrants than for non-immigrants. However, the immigrant experiences are complex and varied, and cannot be easily captured. Analysis of the NPHS data for 1994-95 suggested that socioeconomic factors are important to self-rated health status and the

presence of chronic conditions not just for immigrants, but also for the Canadian-born population; however, the importance may be greater for immigrants.

Overall, the authors did not find a conclusive pattern of association between socioeconomic and immigration characteristics and health status. Their caution, though, is that socioeconomic factors may well affect immigrants' health status. Their logistic regression models did suggest that socioeconomic factors are more important for immigrants than for the Canadian-born population. However, there is no simple explanation. Immigrant experiences are complex, and research is at an early stage (Dunn & Dyck, 2000).

Also, immigrants in lower income groups reported lower scores of HRQOL measured by generic HRQOL instrument HUI3 than Canadian-born low income individuals (Newbold & Danforth, 2003). There is also evidence that between 1980 and 2000 recent immigrants did not have the economic success to the extent of their Canadian counterparts, and the difference can be seen in all age groups and in both genders (Dolin & Young, 2004).

Hyman has concluded that few Canadian studies have examined the changes in the determinants of immigrant health. Moreover, much of that limited research into the determinants of health has not addressed the reality that the Canadian immigrant population is extremely heterogeneous (Hyman, 2001).

In terms of socioeconomic variables, the longitudinal study conducted by Newbold (2005) with data drawn from 1994/95, 1996/97, 1998/99, and 2000/01 NHPs, concluded that immigrants with less than high school education, as well as those with some post-secondary education, were at higher risk for transitioning to poor health. Based

on the study findings, low income had the strongest relationship with poor health outcomes. The database of Statistics Canada (2004) shows that large numbers of new immigrants are under-employed, having possibly lower incomes than comparable native-born subjects, or having to take more than one job in order to provide for a family.

Social Support

Social support, social networks, and social integration are defined as a health determinant for both individual and population health (Berkman & Glass, 2000). There is possibly a reciprocal process at work: social context has an impact on how individuals adopt health behaviors and beliefs; and, on the other hand, social environment, numbers of support networks, and the social system itself influence health status. As examples, lack of support may result in the experience of isolation and depression; and, inadequate housing, with overcrowding of household members, increases a risk of communicable diseases.

Socioeconomic and environmental resources influence strongly individuals' abilities to avoid risks of morbidity and premature mortality, as well as to control the consequences of diseases (Flaskerud & Winslow, 1998; Link & Phelan, 1996). The importance of having supportive peers in specific health situations, as after childbirth, is demonstrated in qualitative studies (Menon, 2002; Nankpi, 1996); these showed the impact of social networks on the health and quality of life. The participatory action study of East Indian immigrant women conducted by Choudry, Jandu, Mahal, Sighn, Sohi-Pabla and Mutta (2002) demonstrated the value of culturally relevant social support networks upon health and well-being, although the study focused mainly on feelings, with no relation to other dimensions of health.

Simich, Beiser, and Mawani (2003) studied the role of social support among refugees with traumatic experiences. They concluded that support from people with similar backgrounds is helpful for newcomers who are adjusting to a new country, and that lack of supportive resources was associated with emotional distress and poor health outcomes. The limitation of the study was that it did not indicate the specific health and well-being outcomes of those who experienced lack of support.

Dunn and Dyck (2000) concluded that immigrants who lack social support are more likely to report unmet needs for health care. This study differentiated immigrants with fewer than 10 years in Canada and those with more than 10 years in Canada; also, those of non-European origin were distinguished from European migrants. However, the study did not outline immigration status, such as refugee, although the authors discussed the implications of the limitation. It was also pointed out that, because of language and cultural barriers, new immigrants are likely to have lower quantity of social support, but the quality of social support could be better because they can often draw upon ties with others from the same cultural and language background (Hiebert, 1998).

Immigration as a Health Determinant

An overview of Canadian research on immigration and health (Kinnon, 1999) suggested that immigration itself may be a central determinant of health for recent immigrants. Pre-immigration experiences can contribute to health status, especially for those who have experience of trauma, violence or other deprivations. Also, resettlement stress is documented to impact health negatively by lowering health-enhancing factors and increasing health risks (Beiser, Devins, & Dion, 1997). Some aspects of the immigration experience that could impact health include: sudden dietary changes and

exposure to local pathogens, as well as catastrophic stress leading to depression, anger, anxiety, and psychosomatic symptoms (Beiser, Dion, & Gotowiec, 1995).

Culturally Responsive Community Services in Health Care

Federal and Provincial Policies and Programs behind Immigrant Health

At the national level the immigrant health policies are regulated under the Canada Health Act, which sets out the federal health insurance legislation (Health Canada, 2004, Health Care). The principles embedded in the policy statements of the Canada Health Act include universality, accessibility, portability, comprehensiveness, and public administration; and the focus is to be on the needs of patients, to ensure that all Canadians have access to medically necessary health care services, when they need them. However, the Immigrant and Protection of Refugees Act states that the Minister of Health has only minimal responsibilities regarding immigrant health, and provincial policies provide the scope of health care practices.

The key elements of the Population Health Approach (Public Health Agency of Canada, 2002) define the goals of population health "to maintain and improve the health status of the entire population and to reduce inequities in health status between populations and groups". A Population Health Approach plans and puts into effect programs, policies and interventions in all areas of health prevention, promotion and care. Health promotion strategies are based on the Ottawa Charter and are aimed at reducing differences in current health status and ensuring equal opportunities and resources to enable all people to achieve their fullest health potential (World Health Organization, 1986). Each province or territory in Canada has a responsibility to administer and deliver

health services and this function is guided by the Canada Health Act (Health Canada, 2004).

Health Care Providing Models for Immigrants and Refugees

Immigrants who are not covered by any provincial health care plan will be eligible for the Interim Federal Health Program (IFH). This program gives effect to a 1957 Order-in-Council that authorizes the Federal Government to pay for health care expenses related to urgent essential services. At the moment, it applies principally to refugee claimants, Convention refugees, and members of the humanitarian-designated classes; and it provides essential health services for the treatment and prevention of serious medical/dental conditions, including immunization and other vital preventive medical care. In addition, essential prescription medications, contraception, prenatal and obstetrical care are included as well as, for immigrants who are unable to pay, the Immigration Medical examination. (Citizenship and Immigration Canada, 2002). Newcomers to Canada, such as landed immigrants or Canadians returning from other countries to live in Canada, may be subject to a waiting period by a province or territory, not to exceed three months, before they are entitled to receive insured health care services. (Citizenship and Immigration Canada, 2002).

Based on the Canadian health care funding system, each province and their health authorities can design their own policies and programs for immigrants and refugees. Programs are mainly based on needs assessment. Previous chapters indicate the areas of needs, such as barriers to access to health care, cultural sensitivity, or disease specific needs, may have both positive and negative impacts on immigrants' and refugees' health status and health behavior.

Underlying Assumptions in Community Health Practice

Community health programs that are targeted to promote health and are defined by the Ottawa Charter (World Health Organization, 1986) have expanded the concept of health to involve capacity. The World Health Organization (1991) recommended several priority areas for action; these include, for example, the strengthening of community advocacy, supporting the health of women and providing them equal access to health care, enabling communities and individuals to take control of their health and environment through education and empowerment, building alliances to strengthen cooperation between health and environment campaigns, and mediating between conflicting interests in society in order to ensure equitable access to a supportive environment for health. These action statements provide a framework for Canadian public health practice. Thereafter, programs of public health practices have had community, system, or individually based focuses in their action plan. (Canadian Public Health Association, 1996).

Many community-based health promotion programs have directed attention to inequalities in health (Gillis, 1999; Raphael, 2000). Leveling of inequalities and provision of equal access to health care resources have been objectives for community level interventions, especially when carrying out programs in which the target populations involve vulnerable groups like the poor, the disabled, children, immigrants, or other disadvantaged groups. Existing approaches consist of several strategies for community based interventions that are based on the theories of health promotion (Nutbeam & Harris, 2002; Steckler et al., 1995). The Health Belief Model, Social Cognitive Theory, Theory of Reasoned Action, and the Transtheoretical Model are examples of theories that

are widely used in community based intervention programs. They are also present in the programs targeted to new immigrant women (Hyman & Guruge, 2002).

Health status is an indicator of functional community capacity (Rafael, 2000).

According to Labonte (1995), the attributes of a functional community include wholeness incorporating diversity, a reasonable basis for shared values, caring trust and teamwork, and participation. These attributes are related to power balance. The health promotion programs for immigrant populations, communities and aggregates aim to deal with, in addition to health, resilience, coping, social support, and issues related to specific subgroups (Chow, 1999; Itzhaky, 2003; Schmitz, Jacobus, Stakeman, Valenzuela, & Sprankel, 2003). These issues directly or indirectly impact the determinants of health, health status, and HRQOL.

Effectiveness and Outcomes of the Programs

There is a question about what type of approach or intervention should be taken in order to design culturally responsive programs that promote health and well-being of immigrant and refugee populations. The available literature on the programs and interventions targeted to immigrant and refugees do not indicate the magnitude of the health impacts of any specific intervention, because they mostly measure program outcomes from the perspective of user satisfaction or number of users. On the other hand, the results of community health work cannot be diminished, and there is anecdotal and expert report evidence about the success of the interventions and outcomes on health. As an example, when the breast-feeding rates of certain immigrant subgroups were low in Edmonton, the community health nurse who works in MCHBS Co-operative, initiated an intervention program. A year later, the number of breast-feeding mothers increased

significantly as did the length of time of breast-feeding (Currie, L, personal communication, September, 20, 2004).

Culturally Responsive Programs in Edmonton

In Edmonton, there are several areas of immigrant health that have been targeted by programs. In addition to governmental programs, there are several non-governmental organizations that focus on newcomers. The activities of the programs are based on the needs of immigrants and refugees or their subgroups. Subgroups can be defined by age, gender, immigrant status, socioeconomic status, or other properties. The participatory action study of Multicultural Health Brokers by Ortiz (2003) showed that perception of the need for multicultural health brokering derived from isolation of the service users, isolation that was due to lack of access to services, an inability to connect, and differences in culture and values. The study found that aspects of the practice were providing one-to-one support, building supportive groups, catalyzing institutional change, building community capacities for self-determination, and building solidarity with broad-based organizations. This is congruent with community development programming, which is defined as "a process of organizing and supporting community groups in their identification of important concerns and issues and in their ability to plan and implement strategies to mitigate their concerns" (Labonte, 1995).

Social agencies in immigrant communities use the term "community based service delivery" as a model of health and social services. Chow (1999) found that multiservice systems in immigrant communities are successful and meet the needs of the community. Another study of ethnic agencies (n=13) described the factors that

characterized ethnic agencies (Holley, 2003). The findings of the study demonstrated that ethnic agencies are critical components of a multicultural service delivery system.

In addition to being culturally appropriate, the services and programs offered for the immigrant population have a role as mediator between the main culture and the culture of origin of the individual. Language barriers play a pivotal role in accessing services. Kirmayer, Groleau, Guzder, Blake, and Jarvis (2003) evaluated the cultural consultant service (CCS) for mental health practitioners and primary care clinicians in Canada. The data were collected using both quantitative and qualitative methods, including periodic research meetings and semi-structured interviews of key staff undertaken by a medical anthropologist. During the evaluation period, CCS received 102 requests for consultation from a variety of health and social services including hospitals, community clinics and private offices. Half of the cases were resolved on the phone, 20 % were assessed not to need CCS, and in two-third of the cases, it was found necessary to match the consultants' background with the patients' background.

The most common benefits of using CCS were the recommendations for reassessing or changing treatment (70%), for using additional treatment (48%), or for change of diagnosis (23%). In nine cases it was recommended to 'match' the treatment ethnically. The satisfaction of the service users was high, almost 90%. However, the limitation of the evaluation was the lack of information about patients' health outcomes, which would indicate the effectiveness of the intervention. Also, small sample size and implementation in only a mental health setting leaves room for additional information to be gathered.

The study findings of Temple (2002) indicated that language proficiency alone by the service provider is not enough to meet the needs of multicultural individuals. Also, the need for specifically targeted interventions for immigrants and refugees is recognized in many community health studies in Canada (Choudry, 1998; Khanlou, 2004; Meadows, Thurston, & Melton, 2001; Meyer, Torres, Cermenno, MacLean, & Monzon, 2003).

Conclusion

It can be concluded that the diversity of immigrant populations has not been completely, or even adequately, targeted in Canadian immigration health studies to date. The research shows that immigrant status, gender, age and ethnic and cultural background affect health status and HRQOL. The main limitation of many studies was that they usually measured the immigrant population as a whole, although large sample sizes would have provided an opportunity to information about sub-groups. The studies about "healthy immigrant effect" had limitations in defining who were the healthy groups; the knowledge about refugees and immigrant women from developing countries is contradictory to much of these findings, for example in the area of mental health (Hyman, Vu, & Beiser, 2000; Meleis, Lipson, Muecke, & Smith, 1998). Also, the NPHS surveys indicated that new immigrants are healthier than the general population, but none of the studies separated out refugees from other immigrant groups. The limited number of studies about refugees and new immigrants can be explained by scarcity of data collection instruments that are both culturally and linguistically appropriate, as well as reliable and valid for these populations.

As well, the literature review revealed that there is no single separate indicator that explains the differences in health status and HRQOL between immigrants and the Canadian-born population. The differences seem to be a complex mixture of premigration experiences and environments, adjustment to the Canadian environment, health behaviors, social support and other determinants.

In their Afterword to the National Symposium on Immigrant Health in Canada, the editors (Gold, DesMeules, Manuel, Kazanjian, Vissandjee, & Mayo, 2004), concluded that the immigrant population in Canada may be healthy overall with regard to total disease risk, but that some recent immigrant groups may be at greater risk of infectious diseases and associated adverse outcomes. These sub-groups may include those who have been in the country for many years; and those with lower socio-economic status.

A conclusion from the symposium was that Canada does not have a coherent, comprehensive policy concerning immigrant health. The immigration medical examination has not changed substantially since early in the Twentieth Century. Its focus was always to protect the Canadian population from infectious disease. It does not touch modern immigration health concerns. Thus, the authors call for urgent research into the health, health service utilization, and health determinants of immigrants, particularly the more vulnerable sub-groups. Statistics Canada is developing the Longitudinal Survey of Immigrants to Canada, partly to overcome the deficiencies of the present reliance upon cross-sectional survey research.

In her recent study for the National Symposium, Hyman reviewed the state of knowledge about immigrant health in Canada in order to see where the gaps still occur

(Hyman, 2004). She concluded that most of the literature suggested that immigrants, particularly recent ones, have health advantages over both long-term immigrants and the non-immigrant population, both in overall health status and the prevalence of some chronic diseases. She reviewed evidence for the so-called "healthy immigrant effect", the concept that both male and female immigrants are in better health on arrival than Canadian-born persons, but that over time this advantage diminishes. The belief is that there is a self-selection process at work; immigrants are people who are able and motivated to move; as well, immigration procedures select "best" candidates on characteristics, such as job skills, that presuppose healthy lifestyles and the absence of serious medical conditions.

In this sociodemographic overview, Hyman acknowledged that, in view of declining population growth rates in Canada, immigration will continue to be significant. Since 1990 Canada has accepted on average 230,000 immigrants each year, the majority being highly educated. She also concluded that immigrants to Canada are heterogeneous regarding country of origin, duration of stay, category of migration, and socioeconomic status. The NPHS data showed that recent immigrants, especially those from non-European countries, have many health advantages over both long-term immigrants and non-immigrants. However, over time, the health status of immigrants increasingly converges with that of the Canadian-born population.

With regard to health determinants, immigrants are definitely and disproportionately poorer than the general Canadian population. Thus, poverty must be treated as a confounder of any relationship between immigration and health. Hyman concludes that more research is required in such specific areas as determinants of

immigrant health and the types of programs and services needed to maintain immigrants in good health. Unfortunately, most existing databases are not useful for such research.

Another analysis for the National Symposium on Immigrant Health in Canada concluded that comprehensive national knowledge about immigrant health and health service utilization is limited (DesMeules, et al., 2004). The authors considered that the healthy immigrant effect may have a variety of explanations, including a selection bias, healthy behaviors (such as lower tobacco use than Canadian-born population) as well as faulty research findings due to methodological shortcomings such as losses to follow-up study. In particular, major gaps in knowledge include: long-term health outcomes, preventable conditions, and chronic disease outcomes, particularly among refugees and non-European immigrants. The authors also noted that there is some evidence that there are large disparities in the health of different immigrant subgroups. As well, preliminary indications are that overall immigrant mortality is low compared to the general population for most of the leading causes, with some exceptions.

Consequently, there was value in undertaking a record linkage multi-province research initiative, which examined mortality patterns (1980-1998) and health service utilization patterns (1985-2002) among immigrants. The records provided some evidence that factors such as immigration category and region of birth may determine immigrant health in Canada. As well analysis of health among subgroups of immigrants will be very important, because there are already preliminary findings that health outcomes do differ by immigrant subgroup, cause, and determinants of health. The results of developing analyses will be important to those health service practitioners working with immigrants

and will help to address both the short and long-term concerns about health outcomes for immigrants.

The literature found in the review indicated that, in addition to the need for culturally competent care, the immigrant communities have also one quite unrecognized resource: they have been initiators of many community development programs in order to promote their own, as well as their counterparts' health. Community development has been utilized in health promotion in order to serve culturally diverse populations. However, there is a gap in existing empirical literature to measure or report valid and reliable health outcomes, including HRQOL and other indicators, in programs targeted to immigrants. Presumably, measuring health status, especially in recent immigrants, has its challenges. In order to participate in these studies, respondents need proficiency in English or French, or the researcher must be able to communicate with the participants. Similarly, existing literature is limited regarding the health of refugees and comparisons between refugees and landed immigrants. The results of the literature review indicated that a study of the HRQOL among immigrant and refugee populations and health outcomes of multicultural health brokers programs would provide new and important information for health care providers and policy makers.

Chapter 3 Methods

Study Design

A descriptive comparative design was used to examine reported health status and HRQOL of immigrants and refugees residing in Edmonton, Alberta. This study consisted of a secondary analysis of data collected previously in a cross-sectional descriptive survey, the Immigrant and Refugee Health Survey (IRHS), which was conducted by the MCHBS Co-operative. Immigrants and refugees who were referred to the MCHBS program between January and June 2005, and who were residing in Edmonton, were surveyed.

The objectives of the MCHBS study were: (1) to determine the sociodemographic characteristics of the clients currently using the services of the MCHBS; (2) to describe the health care experiences of new immigrants and refugees prior to and after migration; (3) to describe the reported health status of the immigrants and refugees referred to the MCHBS program, including a measurement of their HRQOL; and (4) to determine their current health needs and to identify any observed gaps in the health care services provided to them. The results of the MCHBS study were used as part of a health needs assessment for the proposed Newcomers' Health Clinic that is in its early planning stages.

In order to complete requirements of the Master of Nursing program, this researcher analyzed the data collected in order to address objective (3) of the MCHBS study described above. In addition, the analyzed data on the reported HRQOL of immigrants and refugees will be used in a longitudinal study that will be conducted by

the MCHBS Co-operative to measure the effectiveness of the services provided by the MCHBS to new immigrants and refugees.

Study Subjects

The target population of the MCHBS study comprised immigrants and refugees residing in Edmonton. The annual number of clients referred to the MCHBS is approximately 1,000 per year, including children. A convenience sample of 113 participants was drawn from the immigrant and refugee communities served by the MCHBS Cooperative; it consisted of 15 ethnic/language groups. Participants were recruited by MCHBS personnel who were fluent in one of the following languages – Cantonese, Mandarin, Urdu, Croatian, Filipino, Vietnamese, and Spanish. Subjects (n=113) were recruited between January and June 2005, at the time of their first referral appointment. Immigrants and refugees were eligible for inclusion in this study if they met the following criteria:

- (1) They were Edmonton residents and members of the ethnic communities served by the MCHBS; and, MCHBS personnel were able to speak their language;
- (2) They had been referred to and received services from the MCHBS;
- (3) They were able to read and write in their primary language; and,
- (4) They were 18 years of age or older.

Data Collection

Data were collected at the first referral appointment by trained MCHBS personnel using the Immigration and Refugee Health Survey (IRHS; Appendix B) and the EQ-5D-VAS Health Questionnaire (Appendix A). The EQ-5D-VAS Health Questionnaire was used to measure HRQOL, and was included as part of the IRHS. Trained MCHBS

personnel were matched to the study participants based on the client's language and cultural background in order to facilitate data collection. The EQ-5D-VAS was completed by the participants (i.e., self-administered) when a validated translation from the original English language version of EQ-5D-VAS was available (Cantonese, Mandarin, Spanish, Urdu, Croatian, Vietnamese, and Filipino versions). MCHBS translated verbally the English EQ-5D-VAS version and interviewed the subjects from Sudanese, Iranian, Afghani and Ethiopian refugee communities.

The data for IRHS was collected in face-to-face interviews by MCHBS interviewers, who translated the English questions to the clients (Appendix B). Both questionnaires were then coded to MCHBS database.

Outcomes

The outcome measures used in this study included the respondent's self-reported health status and HRQOL: these variables were measured by the EQ-5D-VAS (Appendix A).

Measuring Health Status and HRQOL

There are several instruments that measure HRQOL. However, there is no single gold standard HRQOL instrument in the field that provides better results over the others. When collecting data on HRQOL from heterogeneous populations for whom knowledge about the characteristics of the different populations is lacking (e.g., literacy, educational achievements and cultural characteristics), it is recommended that a generic instrument

which has been tested in a variety of health care settings with different populations be employed (Brooks, Rabin, & deCharro, 2003).

EQ-5D-VAS Health Questionnaire

The EQ-5D is a generic standardized instrument that has been used extensively to describe and to measure health outcomes, and specifically, HRQOL. It was designed to measure HRQOL over a wide range of health conditions in different clinical settings. It has been used widely in clinical studies, population health surveys, and economic evaluations of health care. It is an example of a preference-based index measure, which provides a single summary value for each of the health states defined by the EQ-5D descriptive system (Brooks, 1996; Essink-Bot et al., 1997). The index value is based on the health state valuations obtained from the general population in each country. In countries that do not have the single index valuations, the single index from the United Kingdom (Dolan, 1997) is often used. Recently Shaw et al., (2005) have published a health state valuation in the United States.

EQ-5D was developed by the EuroQol group – a multidisciplinary, multinational team of European researchers starting in 1986 (www.euroqol.org). The intent of this group was to develop a simple, self-administered instrument which would provide the clinician/researcher with a composite index score indicating the subject's preference for a given health state (EuroQol Group, 1990; Kind, 1996). The original version of the EQ-5D instrument was written in English and is referred to as the U.K. version. Currently, there are over 60 culturally-adjusted official language versions, and 16 additional translations are awaiting official approval (www.euroqol.org).

The EQ-5D (Appendix A) is a self-administered questionnaire in which respondents are asked to evaluate their current health state. It consists of two parts: (1) the EQ-5D descriptive system, and (2) the EQ-5D VAS (Brooks, Rabin & de Charro, 2003; Rabin & de Charro, 2001). The EQ-5D descriptive system consists of 5 items that address the following five health state dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. The subject is instructed to select one of three levels of severity for each dimension (level 1=no problems; level 2=some/moderate problems; level 3=severe/extreme problems) (Table 2). By combining different levels from each health state dimension, every subject is assigned a unique 5-digit number that can be categorized into one of 243 theoretically possible health states (Brooks, Rabin, & de Charro, 2003). A single index value for each of the health states was calculated for the general population valuations from the United Kingdom (Dolan, 1997) as there is no Canadian general population valuation from the EQ-5D. This index value is used to create a health profile for individuals and subgroups at a single point in time and longitudinally, over an extended period of time.

Table 2. *EQ-5D Dimensions and Levels*

Dimension	LEVEL		
	1	2	3
Mobility	No problems with walking	Some problems with walking	Confined to bed
Self-care	No problems	Some problems	Unable
Usual activities (e.g., work, study, housework, leisure activities)	No problems	Some problems	Unable
Pain/Discomfort	No pain	Moderate pain or discomfort	Extreme pain or discomfort
Anxiety/Depression	Not anxious or depressed	Moderately anxious or depressed	Extremely anxious or depressed

Study participants also completed the EQ-5D-VAS (Appendix A), a visual analogue scale used to measure reported health status. Immigrant and refugee participants were asked to rate their current state of health on a 20 cm vertical scale ranging from 0 (worst imaginable state of health) to 100 (best imaginable health state). Participant responses are reported in one unit intervals (Brooks, 1996).

The EQ-5D has good test-retest reliability. Dolan (1994) examined test-retest reliability of the EQ-5D in a sample of $n=221$ individuals in the United Kingdom. The mobility dimension was the most reliable (Reliability Coefficient= 0.75); the pain dimension was found to be the least reliable ($RC=0.49$). The overall test-retest reliability coefficient derived from the individual correlations, considering all possible health states simultaneously, was 0.84. Dolan (1997) reported that 38% of the subjects changed their response on at least one dimension, but none of the respondents changed on all five dimensions. The time between the two interviews was three months. A study that used EQ-5D for individuals with rheumatoid arthritis (Hurst, 1997) reported lower reliability coefficients for each of the dimensions (when compared to those obtained by Dolan (1994). Hurst (1997) reported the following test-retest coefficients for each of the 5 dimensions: 0.67 for mobility, 0.71 for self-care, 0.70 for usual activities, 0.67 for pain, 0.43 for anxiety/depression. The RC for the EQ-VAS = 0.82 in this study.

The construct validity of the EQ-5D has been established for Canadian subjects residing in the province of Alberta (Johnson & Pickard, 2000). In this population-based study, the sample consisted of $n=1,518$ subjects (of these, 66.5% were males). Respondents with no medical problems reported fewer conditions on the EQ-5D than those subjects with multiple health conditions. The results of the EQ-5D were also

compared with health status profiles obtained with the SF-12 measure. Johnson & Pickard (2000) reported that participants who indicated any health problems on the EQ-5D had significantly lower mean SF-12 scores. In addition, the EQ-5D index scores were positively correlated with the SF-12 summary scores ($p < 0.01$). For the physical and mental components, the correlation coefficients were $r = 0.68$ and $r = 0.38$ respectively. It was reported that there was a ceiling effect for the EQ-5D – approximately 47% of the subjects reported no problems (Johnson & Pickard, 2000).

Immigrant and Refugee Health Survey (IRHS)

In addition to health status and HRQOL, demographic and clinical information was also collected using the IRHS (Appendix B). This information was used to describe the health state response patterns in the study. The demographic data included the age and gender of the respondents, marital and employment status, educational level, immigration status (arrival status), family size, annual household income, length of stay in Canada, and self-rated English proficiency. The clinical variables included chronic diseases diagnosed by a health care provider and the experiences of immigrants and refugees of using health care services in Canada (Appendix B). Demographic, socioeconomic and clinical information was used in the proposed study to create population subgroups and to determine if there were differences in health status and HRQOL across the different subgroups.

Data Analysis

The data used in this study were entered and cleaned by a trained MCHBS volunteer using the Statistical Package for the Social Sciences (SPSS Version 13; SPSS

Inc, Chicago, IL). The EQ-5D and EQ-VAS coding was done using the guidelines recommended by Brooks, Rabin and de Charro (2003). The data were checked and double-entered to ensure data accuracy. Statistical analysis was performed using the SPSS Version 13. program. Respondents who did not answer all EQ-5D items were analyzed separately.

The demographic and socioeconomic profiles of the study participants are presented using frequency tables, cross-tabulations and graphical displays. Continuous variables are summarized using means and standard deviations, medians and ranges where appropriate.

EQ-5D single index and EQ-VAS scores were calculated for the respondents and summarized using means, standard deviations, medians and interquartile ranges.

The student's t-test and ANOVA was used to describe and to compare differences in the health states defined by EQ-5D and EQ-5D-VAS summary scores for different subgroups (e.g., immigrants vs. refugees, groups defined according to education, age, and gender). For summary scores that had a skewed distribution, a non-parametric test (Kruskal Wallis) was used instead of ANOVA. In addition, group differences according to the length of residence, self-reported language ability, utilization of health care services, and reported income were analyzed in the same manner. Demographic, socioeconomic and clinical variables have been identified as significant covariates in the analysis of EQ-5D index and VAS scores (Brooks, Rabin & de Charro, 2003). To control for these potential confounders, Linear Regression Model was employed. The level of significance was set at $p \leq 0.05$. To examine differences in scores for the five EQ-5D health state dimensions by sub-groups, the Mann-Whitney U test and Kruskal-Wallis test

were employed. These nonparametric tests were used because the EQ-5D data may not be normally distributed if the base population is relatively healthy.

Ethical Considerations

The proposal of the study was submitted to the Ethics Review Board (Panel B) at the University of Alberta for expedited review and approval. The data for the proposed study had already been collected by the MCHBS. Approval was obtained from Lucenia Ortiz and Yvonne Chiu, Executive Directors MCHBS, for data access. The data file that was provided to this researcher did not contain personal identifiers (only subject code numbers), to maintain the immigrant/refugee clients' privacy and anonymity. It was stated that if there had been any possibility that a participant would be recognized by nationality, or for some other reason, the data manager would have removed the data from the database provided to the researcher. Study findings are reported by group (i.e. aggregate results) to maintain subject confidentiality. All data will be kept secured in a locked filing cabinet for 7 years.

Chapter 4 Results

Study Population

The study sample consisted of $n=113$ respondents, who represented 10 different ethnic or language groups. The largest groups by nationality were Sudanese ($n=24$; 21.2 %), Chinese ($n=15$; 13.3 %), Iraqi/ Kurdish ($n=13$; 11.5 %), Vietnamese ($n=12$; 10.6 %), Filipino ($n=10$; 8.9%), Afghani ($n=10$; 8.9 %), Indian/Pakistani ($n=10$; 8.9 %), Bosnian ($n=10$; 8.9%), and Ethiopian ($n=8$; 7.1%). Of the respondents, $n=66$ (58.4%) indicated that they arrived in Canada with refugee status, and $n=47$ (41.6 %) indicated that they were immigrants (i.e., permanent resident, family reunion). Twenty-three (20.4%) of the subjects had obtained Canadian citizenship.

The majority of the study population were female; males, $n=17$, comprised only 15.3 % of the respondents (Table 3). The age of the respondents ranged between 19 and 84 years, and their mean age was 36.9 ± 11.3 years (median age was 35 years). The mean age of the immigrants was 35.8 ± 9.0 years (median age 36 years), while the mean age of the refugees was slightly higher at 37.8 ± 12.7 years (median age was 33.5 years). The male subjects were older (mean age was 41.5 ± 11.5 years; median age 41 years) than the female subjects (mean 36.1 ± 11.1 years; median 33.5 years), but that difference was not statistically significant (t-test). The oldest subjects were Bosnian (mean age was 51.6 ± 19.2 years; median age was 45.0 years) and the "youngest" group was Sudanese (mean age was 31.5 ± 8.0 years; median age was 30.0 years).

Of all the respondents, 73.5% were married, 2.7 % lived in a common law relationship, 3.6% were single, 8.0% were separated or divorced, and 11.6 % were widowed. The mean household size was 5.3 ± 2.7 members living in the household,

varying between 1 to 17 persons per household. The mean household size for immigrants and refugees was 4.8 ± 2.8 and 5.6 ± 2.7 persons respectively. The Afghani group had the largest household size with a mean of 7.7 persons in the household. The mean household sizes for other nationality groups were 7.2 for the Iraqi/Iranian/Kurdish group, Indian/Pakistani 6.3, Sudanese 5.6, Filipino 5.4, Ethiopian 4.5, Chinese 4.3, Vietnamese 3.7, and Bosnian 2.4.

The largest group of the subjects had less than a high school education (47.5%) whereas 22.6% of respondents had post-secondary or higher education; Just under 30% of respondents had completed high school. The refugees had statistically significantly ($p=0.02$) less education than the other immigrants: 36.4% of subjects indicated that they had been employed or self-employed in their home countries; 34.6% had been homemakers/mothers; 19.6% had been students, and the rest (9.4%) had been either seeking work, retired or in some other situation. In Canada, 20.4% of the respondents were not working, 7.1% were homemakers, 4.4% were retired, 2.7% were students, and the rest (65.4%) were working in miscellaneous jobs, mostly as labourers.

Annual household income was less than \$15,000 for 40% of the immigrants and 46% of the refugees, but 36% of the immigrants earned more than \$25,000/year. None of the refugees earned that much (Table 3). Measured by Chi-square test, this difference was statistically very significant ($p<0.001$).

The mean length of residence in Edmonton was 5.3 ± 4.4 years, ranging from 1 month to 21 years. For the immigrants, the mean length of stay was 8.0 ± 5.2 years, (median 7.0 years), and for the refugees 3.6 ± 2.8 years (median 3.0 years). The proportion of immigrants with a length of stay less than 5 years was ($n=16$), 34%, and for

those with more than 10 years it was (n=20) 21.3%. At the same time, the number of refugees who had resided in Edmonton less than five years was n=50 (76.9%) and only n=2 (3.1%) of them had been in Edmonton more than 10 years. The difference in length of stay between immigrants and refugees was statistically significant ($p < 0.001$).

Table 3

Demographic Profile of the Study Subjects

Variables	Immigrants (n=47) Frequency (%)	Refugees (n=66) Frequency (%)	Total (N=113) Frequency (%)
Age			
20 - 30	12 (25.5)	2 (3.1)	14 (12.7)
31 - 40	24 (51.1)	29 (45.3)	53 (47.7)
41 - 50	7 (14.9)	21 (32.8)	28 (25.2)
51 - 60	1 (2.1)	5 (7.8)	6 (5.4)
61 -	3 (6.4)	7 (10.9)	10 (9.0)
Gender			
Male	2 (4.3)	15 (22.7)	17 (15.3)
Female	45 (95.7)	51 (77.3)	96 (113)
Length of Stay in Canada			
0-4 years	16 (34.0)	50 (76.9)	66 (59.0)
5-10 years	11 (23.4)	13 (20.0)	24 (21.5)
10- years	20 (42.6)	2 (3.1)	22 (19.5)
Highest Level of Education			
Less than High School	13 (28.9)	33 (63.5)	46 (47.5)
High School	15 (33.3)	14 (26.9)	29 (29.9)
Post Secondary	12 (26.7)	3 (5.8)	15 (15.4)
University Degree	5 (11.1)	2 (3.8)	7 (7.2)
Annual Household Income			
Less than \$15,000	18 (40.0)	29 (46.0)	47 (43.5)
\$15,000- \$24,999	11 (24.5)	34 (54.0)	45 (41.7)
\$25,000- \$38,000	10 (22.2)	0	10 (9.3)
\$39,000- \$50,000	4 (8.9)	0	4 (3.7)
\$51,000- \$70,000	1 (2.2)	0	1 (0.9)
\$71,000 and higher	1 (2.2)	0	1 (0.9)

Self-rated English skills were measured by a visual analog scale (VAS) and the scores varied between 0 and 100. The mean verbal score was 31.4 ± 27.4 and for English

comprehension (reading ability), the mean score was 28.7 ± 29.6 . The mean English speaking skills of the refugees were much lower than the other immigrants; however, the 95% confidence intervals (CI) overlapped slightly due to high variance in the immigrant group. This indicates that the immigrant group included individuals whose English speaking capabilities were highly mixed (Figure 1). The differences between immigrants and refugees in their ability to read English were larger than the differences in their English speaking capabilities, and that difference was statistically significant, ($p = 0.002$) (Figure 2). The validity of the language skills questions was somewhat limited because 40% of the respondents did not answer this question.

Figure 1. *English Speaking Skills in Immigrant and Refugee Groups: Mean Values and 95% Confidence Intervals*

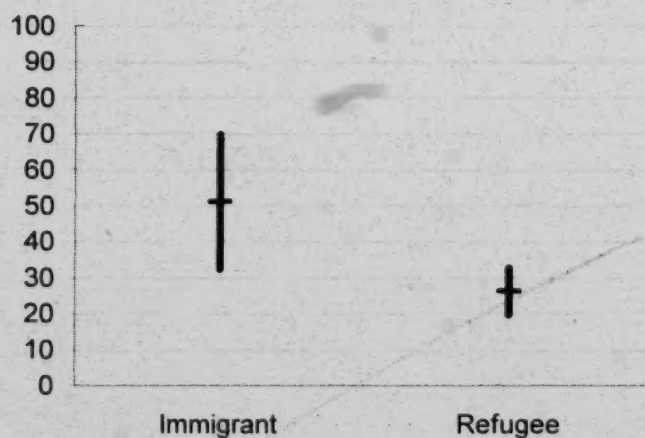
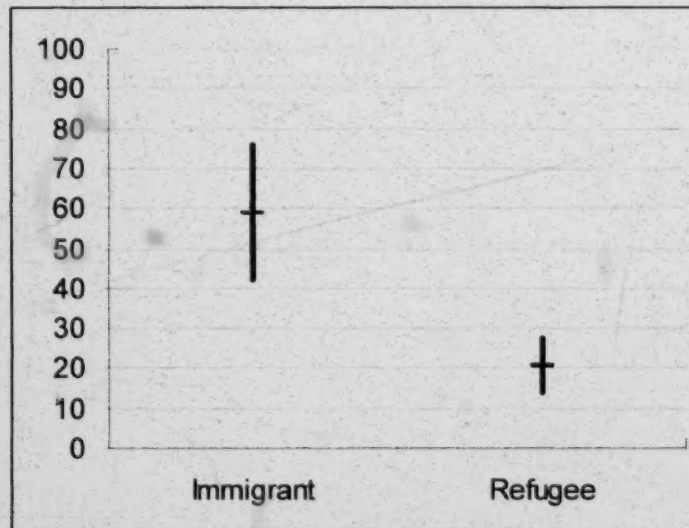


Figure 2. *English Reading Skills in Immigrant and Refugee Groups: Mean Values and 95% Confidence Intervals*



Health Status

Almost every subject indicated that, prior to migration to Canada, they had had a medical examination including a blood test and x-ray provided by a doctor. After immigration, 82.7% had visited health clinics, and 69.9% of the subjects had a family physician. Of the immigrants, 86.7% had a family physician, while 61.5% of the refugees had a family physician. The difference between the proportion of immigrants and refugees in having a family physician was statistically significant ($p=0.003$). Of the female subjects, approximately $n=6$ (6.3%) were pregnant, and $n=35$ (37.2%) indicated that they had given birth in the past 12 months. Medication prescribed by a health care provider was used by $n=33$ (30.6%) respondents; $n=36$ (33.3%) subjects reported using traditional medicine or vitamins. Fifty-six subjects (49.6%) indicated that, after arriving

in Canada, they had been in a situation where they needed health care but could not access it (10 immigrants, 46 refugees; $p < 0.001$).

Of the respondents, $n=53$ (46.9%) did not have any chronic condition diagnosed by health care providers, while $n=21$ (18.6%) subjects had one health problem, $n=17$ (15%) had two health problems, and $n=22$ (19.5%) had three or more chronic health conditions. Refugees had significantly more chronic conditions than other immigrants ($p=0.021$). Thirty subjects (26.5%) had emotional/mental health issues diagnosed by a health care provider; of these, $n=8$ (17%) were immigrants and $n=22$ (33.3%) were refugees. Nineteen subjects (16.8%) had arthritis ($n=2$ immigrants and $n=17$ refugees); $n=17$ (15%) subjects had heart problems including high blood pressure ($n=5$ immigrants, $n=12$ refugees); $n=17$ (15%) subjects had chronic stomach ache ($n=4$ immigrants, $n=13$ refugees); and, $n=23$ (20.4%) subjects had chronic headache ($n=6$ immigrants, $n=17$ refugees).

The Health Status and Health Related Quality of Life of Immigrants and Refugees

EQ-5D Instrument

The total population did not report having many problems in the mobility, self-care and usual activities dimensions (Table 4). In the pain/discomfort dimension, 45% had some or severe problems. In the anxiety/depression dimension, 64.5% had at least some problems and over half of them had severe problems. Immigrants reported slightly more "no problems" in mobility (84.4%), self-care (95.6%) and usual activities (88.9%) dimensions than did refugees (81.8%, 87.9%, 71.2%), but the difference was statistically significant only in the usual activities dimension ($p=0.025$). In the pain/discomfort

dimension more refugees indicated having extreme problems (16.7%) than did immigrants (2.2%). However, the difference was not statistically significant ($p=0.159$). Two-thirds of the immigrants reported no problems in the anxiety/depression dimension, while among the refugees only 13.8% reported no problems. About the same proportion of immigrants and refugees had some problems with anxiety/depression but only refugees reported having extreme problems with anxiety/depression very often. This difference between immigrants and refugees was statistically significant at the level $p < 0.001$.

Table 4

*Frequencies in EQ-5D Dimensions and Mean Values of the EQ-5D Index and VAS
Scores in Immigrant and Refugee Populations*

Dimension/level	Immigrant	Refugee	Total	p-value
<i>Mobility*</i>				<i>p=0.696</i>
No problems	38 (84.4%)	54 (81.8%)	92 (82.9%)	
Some problems	7 (15.6%)	11 (16.7%)	18 (16.2%)	
Confined to bed	0	1 (1.5%)	1 (0.9%)	
<i>Self-care*</i>				<i>p=0.164</i>
No problems	43 (95.6%)	58 (87.9%)	101 (91.0%)	
Some problems	2 (4.4%)	7 (10.6%)	9 (8.1%)	
Unable to do	0	1 (1.5%)	1 (0.9%)	
<i>Usual Activities*</i>				<i>p=0.025</i>
No problems	40 (88.9%)	47 (71.2%)	87 (78.4%)	
Some problems	5 (11.1%)	17 (25.8%)	22 (19.8%)	
Unable to do	0	2 (3.0%)	2 (1.8%)	
<i>Pain or discomfort*</i>				<i>p=0.159</i>
No problems	27 (60.0%)	34 (51.5%)	61 (55.0%)	
Some problems	17 (37.8%)	21 (31.8%)	38 (34.2%)	
Extreme problems	1 (2.2%)	11 (16.7%)	12 (10.8%)	
<i>Anxiety or Depression*</i>				<i>p<0.001</i>
No problems	30 (66.7%)	9 (13.8%)	39 (35.5%)	
Some problems	11 (24.4%)	14 (21.5%)	25 (22.7%)	
Extreme problems	4 (8.9%)	42 (64.6%)	46 (41.8%)	
EQ-5D Index, mean (SD.)**	0.8274 (0.259)	0.4361 (0.357)	0.5962 (0.373)	<i>p<0.001</i>
VAS Score, mean (SD.)**	83.71 (14.8)	47.80 (25.0)	62.49 (27.8)	<i>p<0.001</i>

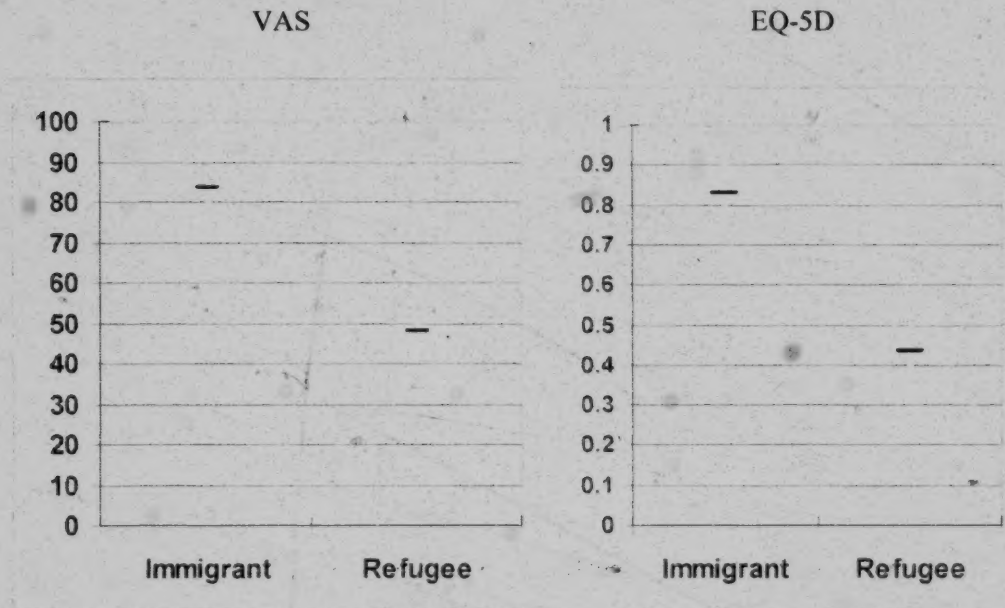
* Mann-Whitney test (2-tailed)

** t-test (2-tailed)

SD = standard deviation

The mean EQ-5D index score was 0.60 (median 0.71, $SD=0.37$), and it ranged between -0.24 and 1.00. The lower interquartile was 0.291, the upper level was 1.00. The mean VAS score was 62.49 (median 70.0, $SD=27.76$), and it ranged between 5 and 100. The lower interquartile level was 38.0 and the upper level was 85.0. The mean score of the EQ-5D index was 0.83 for the immigrants and 0.44 for the refugees ($p<0.001$). The mean of the VAS for the immigrants was 83.71 and for the refugees 47.20 ($p<0.001$).

Figure 3. *EQ-5D Index Scores and VAS Scores in Immigrant and Refugee Groups: Mean Values and 95% Confidence Intervals*



Distribution of EQ-5D Dimensions by Sociodemographic Variables

The difference between male and female subjects in EQ-5D dimensions was not significantly different in any of the dimensions ($p > 0.05$). Also, the EQ-5D-index score and VAS did not show any significant differences between genders ($p > 0.05$). The difference between income groups was tested by classifying income into three different categories ($< \$15,000$; $\$15,000$ – $\$25,900$; and all other classes). There were no significant differences in the EQ-5D dimensions between income groups except in the anxiety/depression dimension ($p=0.001$). Because none of the refugees reported an income level higher than $\$25,000$, income was categorized as (1) less than $\$15,000$ and

(2) \$15,000 or more. There were no significant differences in the EQ-5D dimensions between the two income groups ($p > 0.05$).

Study subjects who had been employed or who were seeking work (56%) before migration reported significantly better HRQOL in all EQ-5D dimensions ($p < 0.05$). The EQ-5D index scores for subjects who were employed or seeking work ($n=57$) or those who were students ($n=21$) prior to migration were 0.77 and 0.43 respectively; and the VAS score was 75.3 and 48.7 in the employed/student groups. These differences were statistically significant ($p < 0.001$).

The length of stay in Canada was categorized as (1) 0-4 years, (2) 5-10 years, and (3) more than 10 years of residency. The mean EQ-5D score for the first group that had stayed 0-4 years in Canada significantly more problems in the anxiety/depression dimension ($p=0.05$) than the other groups that had stayed 5-10 years or more than 10 years in Canada. There were no differences in other dimensions by the length of stay. For the independent sample t-test, the subjects were divided into five years or less of residency and more than five years of residency. The mean EQ-5D index score for the five years and less residency group was 0.54 ± 0.38 and for the second group 0.61 ± 0.80 . The mean VAS for the newer arrivals was 58.86 ± 28.44 and for the second group the mean VAS was 59.54 ± 28.29 . The differences between the mean values in the groups were not significantly different ($p=0.920$ and $p=0.452$).

The education of the subjects was categorized as (0) less than high school education, and (1) high school or more education, including post-secondary and university degrees (Table 5). Educational achievement did not have any impact on the mobility and self-care dimensions. With respect to usual activities, the difference was not

statistically significant ($p=0.070$). In the pain/discomfort dimension, over half (55.7%) of those with less than high school education reported moderate or extreme pain/discomfort compared to one-third (33.0%) of the subjects with high school or more: and extreme pain/discomfort was much higher among the less educated ($p=0.007$). Eighty percent of the respondents with less than high school education reported some problems or extreme problems in the anxiety/depression dimension, with the extreme level being dominant (56.7%). Over half of the high school or more educated group reported no anxiety/depression; however, 24.0% of them also reported extreme anxiety/depression. The difference between the groups in this dimension was statistically significant ($p<0.001$). The mean EQ-5D index scores in the less than high school group was 0.47 ± 0.36 ; for subjects with a high school education or higher, the mean score was 0.74 ± 0.33 . The difference between the groups was statistically significant ($p<0.001$). The VAS score mean of the less than high school group was 51.15 ± 29.92 , while in the other group the mean VAS score was 76.61 ± 21.84 . Similarly, the difference between the groups was statistically significant ($p<0.001$).

Table 5

Distribution of EQ-5D Dimensions and Index Scores by Education

Dimension/level	Less than High School	More than High School	Total	p-value
<i>Mobility*</i>				<i>p</i> =0.188
No problems	48 (78.7%)	44 (88.0%)	92 (82.9%)	
Some problems	12 (19.7%)	6 (12.0%)	18 (16.2%)	
Confined to bed	1 (1.6%)	0	1 (0.9%)	
<i>Self-care*</i>				<i>p</i> =0.339
No problems	54 (88.5%)	47 (94.0%)	101 (91.0%)	
Some problems	7 (11.5%)	2 (4.0%)	9 (8.1%)	
Unable to do	0	1 (2.0%)	1 (0.9%)	
<i>Usual Activities*</i>				<i>p</i> =0.070
No problems	44 (72.1%)	43 (86.0%)	87 (78.4%)	
Some problems	15 (24.6%)	7 (14.0%)	22 (19.8%)	
Unable to do	2 (3.3%)	0	2 (1.8%)	
<i>Pain or discomfort*</i>				<i>p</i> =0.007
No problems	27 (44.3%)	34 (68%)	61 (55.0%)	
Some problems	24 (39.3%)	14 (29.0%)	38 (34.2%)	
Extreme problems	10 (16.4%)	2 (4.0%)	12 (10.8%)	
<i>Anxiety or Depression*</i>				<i>p</i> <0.001
No problems	12 (20.0%)	27 (54.0%)	39 (35.5%)	
Some problems	14 (23.3%)	11 (22.0%)	25 (22.7%)	
Extreme problems	34 (56.7%)	12 (24.0%)	46 (41.8%)	
EQ-5D Index, mean (SD)**	0.473 (0.364)	0.744 (0.329)	0.5962 (0.373)	<i>p</i> <0.001
VAS Score, mean (SD)**	51.15 (29.92)	76.61 (21.84)	62.49 (27.8)	<i>p</i> <0.001

* Mann-Whitney test (2-tailed)

** t-test (2-tailed)

SD = standard deviation

Regression Analysis of Possible Predictors of EQ-5D Index and VAS

The analysis above of Table 4 and Table 5 indicated that both the EQ-5 D dimensions and VAS scores were influenced by many variables. A linear regression model was used to determine which of the study variables -- age (in years), gender (0=male, 1=female), arrival status (0=immigrant, 1= refugee), education (0=less than high school, 1= high school or more), annual income (0= \$15, 000 or less, 1= more than \$ 15,000), number of chronic diseases, and length of stay in Canada (0=less than 5 years, 1=5 years or more) -- explained the EQ-5D and VAS scores. The reason for using \$15,000 as a cut point in the income variable was that no refugees reported higher than \$25,000 annual income. Occupation was not tested, because the majority of the subjects reported to be either labourers or homemakers.

Age, education, income, and length of stay in Canada did not have a statistically significant impact on the EQ-5D index score ($p>0.05$). However, arrival status as a refugee decreased the EQ-5D index score by approximately 0.35 units ($p<0.001$) (Table 6). The second significant variable was the number of chronic diseases; every new chronic disease decreased the index about 0.1 unit ($p<0.001$). The results of the regression indicated that gender also had an impact on EQ-5D index ($p=0.024$).

In the second linear regression model (Table 7), age, gender, income, and length of stay in Canada did not have a statistically significant impact on VAS scores ($p>0.05$). The significant predictors of VAS score were arrival status (immigrant/refugee), number of chronic diseases and education. The VAS score decreased about 27 units if the respondent was a refugee ($p<0.001$). Accordingly, an additional chronic disease

decreases the VAS score 6.6 units ($p < 0.001$). Education also had an impact on the VAS: having high school or more education increases the VAS score almost 9 units ($p < 0.024$).

Table 6

Linear Regression Model of the Predictors of the EQ-5D Index Score

Independent Variables	B	t-value	Significance
Constant	0.900	20.54	0.000
Gender	0.174	2.29	0.024
Arrival Status	-0.350	-6.08	0.000
Number of chronic diseases	-0.098	-5.86	0.000
Adjusted R Square = 0.469			

(B= Parameter estimate)

Table 7

Linear Regression Model of the Predictors of the VAS Score

Independent Variables	B	t-value	Significance
Constant	83.05	20.87	0.000
Arrival status	-27.22	-7.064	0.000
Number of chronic diseases	-6.63	-5.984	0.000
Education	8.78	2.283	0.025
Adjusted R Square = 0.585			

(B= Parameter estimate)

Goodness of fit statistics were used to test how well the models explained the variance in the data. Adjusted R square values (Tables 6 and 7) of both regression models can be considered to be good (0.47 for EQ-5D index; 0.59 for VAS). Also F-test of the model showed good fit of both models to the data ($p < 0.001$). Normal P-P Plot of standardized residuals were used to analyze the normality of the regression residuals, i.e., the difference between predicted and observed score values, in both EQ-5D model and VAS model. The test results show that in both regression models the residuals are relatively close to the diagonal line, indicating good normality of the residuals that indicates good fit of the models to the data (Appendix E).

A correlation matrix was used to analyze the strength and direction of the correlation between the HRQOL variables and the background variables, and possible correlation between background variables. From Table 8 it can be seen that EQ-5D dimensions correlated with each other statistically significantly on $p < 0.01$ level. Age was linked to increased problems in mobility, usual activities and pain or discomfort dimensions ($p < 0.01$). Arrival status had high and statistically significant correlation to the anxiety or depression dimension. High school or more education was negatively correlating ($p < 0.01$) on a relatively low level with the pain or discomfort, and the anxiety or depression dimensions (Table 8). The sum of chronic diseases correlated positively and on a relatively high level ($p < 0.01$) with all other dimensions except the self-care dimension. Arrival status as refugee was significantly ($p < 0.01$) but on relatively low level ($r = 0.345$) related to lower education level and to arrival shorter than five year ($r = 0.511$; $p < 0.01$). Sum of chronic diseases was positively correlated with increasing age and also positively correlated with at least high school education level ($p < 0.01$).

The EQ-5D index and VAS were statistically significantly and highly correlated (Table 9). Both EQ-5D index and VAS correlated highly and significantly ($p < 0.01$) with arrival status and sum of chronic diseases. Although high school or more education was statistically significantly ($p < 0.01$) correlated with both EQ-5D index and VAS, its correlation coefficient with EQ-5D index was relatively low ($r = 0.382$). The diagnosed mental health problems correlated also slightly higher with the VAS than EQ-5D. Because the mental health problems were highly correlated with sum of chronic diseases ($r = 0.624$), mental health problems was left out from the regression models that explained the variation in the HRQOL indexes.

Table 8. Pearson Correlation (*r*) of EQ-5D Dimensions and Main Study Variables

		Mobility	Self-care	Usual Activities	Pain / Discomfort	Anxiety / Depression	Age	Gender	Arrival Status	High School or more Education	Income	Arrival within 5 years
Mobility	<i>r</i>	1										
	<i>N</i>	111										
Self-care	<i>r</i>	.474(**)	1									
	<i>N</i>	111	111									
Usual Activities	<i>r</i>	.583(**)	.499(**)	1								
	<i>N</i>	111	111	111								
Pain / Discomfort	<i>r</i>	.547(**)	.318(**)	.584(**)	1							
	<i>N</i>	111	111	111	111							
Anxiety / Depression	<i>r</i>	.247(**)	.293(**)	.297(**)	.427(**)	1						
	<i>N</i>	110	110	110	110	110						
Age	<i>r</i>	.390(**)	.219(*)	.305(**)	.356(**)	.121	1					
	<i>N</i>	109	109	109	109	108	111					
Gender	<i>r</i>	-.127	-.052	-.107	-.092	.112	.174	1				
	<i>N</i>	111	111	111	111	110	111	113				
Arrival status	<i>r</i>	.050	.138	.219(*)	.165	.609(**)	.087	.255(**)	1			
	<i>N</i>	111	111	111	111	110	111	113	113			
High School or more education	<i>r</i>	-.152	-.078	-.227(*)	-.394(**)	-.365(**)	-.283(**)	.006	-.345(**)	1		
	<i>N</i>	95	95	95	95	94	95	97	97	97		
Income (<\$15,000)	<i>r</i>	-.129	.020	-.065	-.052	.122	-.160	-.107	-.060	.037	1	
	<i>N</i>	106	106	106	106	105	106	108	108	92	108	
Arrival in five years	<i>r</i>	-.010	-.007	-.110	-.012	-.231(*)	.221(*)	-.151	-.511(**)	.000	.219(*)	1
	<i>N</i>	110	110	110	110	109	110	112	112	96	108	112
Sum chronic diseases	<i>r</i>	.487(**)	.205(*)	.480(**)	.550(**)	.421(**)	.550(**)	.003	.214(*)	-.373(**)	-.024	.027
	<i>N</i>	111	111	111	111	110	111	113	113	97	108	112

** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed);

r = Pearson correlation coefficient; *N* = number of subjects

Table 9. Pearson Correlation (*r*) of EQ-5D Score and VAS and Main Study Variables

		Age	Gender	Arrival status	High school or more education	Income	Arrival in 5 years	Number of Chronic Diseases	Mental Health Problems	EQ-5D Score	Visual Analog Scale
Age	<i>r</i>	1									
	N	111									
Gender	<i>r</i>	.174	1								
	N	111	113								
Arrival status	<i>r</i>	.087	.255(**)	1							
	N	111	113	113							
High School or more education	<i>r</i>	-.283(**)	.006	-.345(**)	1						
	N	95	97	97	97						
Income	<i>r</i>	-.160	-.107	-.060	.037	1					
	N	106	108	108	92	108					
Arrival in five years	<i>r</i>	.221(*)	-.151	-.511(**)	.000	.219(*)	1				
	N	110	112	112	96	108	112				
Sum of chronic diseases	<i>r</i>	.550(**)	.003	.214(*)	-.373(**)	-.024	.027	1			
	N	111	113	113	97	108	112	113			
Mental health problems	<i>r</i>	.333(**)	.027	.182	-.424(**)	-.039	.020	.624(**)	1		
	N	111	113	113	97	108	112	113	113		
EQ-5D Score	<i>r</i>	-.234(*)	.011	-.518(**)	.382(**)	-.043	.216(*)	-.538(**)	-.381(**)	1	
	N	108	110	110	94	105	109	110	110	110	
Visual Analog Scale	<i>r</i>	-.328(**)	-.155	-.639(**)	.536(**)	-.029	.239(*)	-.541(**)	-.494(**)	.687(**)	1
	N	109	110	110	94	105	108	110	110	109	110

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

r - Pearson correlation coefficient

N - number of subjects

Conclusion

The results of the study indicate a significant difference in HRQOL between immigrants and refugees measured by the EQ-5D instrument. The significance was shown in both EQ-5D index score ($p < 0.001$) and VAS ($p < 0.001$). The difference was not significant in the pain or discomfort, mobility, usual activities, and self-care dimensions, whereas in anxiety or depression dimension 33.3 % of immigrants and 86.1% of refugees reported problems at some or extreme level. The difference in mood dimension between immigrants and refugees was statistically significant ($p < 0.001$). The predictors of lower EQ-5D index score were arrival status (refugee), number of chronic diseases, and gender (female). The predictors of lower VAS were arrival status (refugee), number of chronic diseases, and education (less than high school). Anxiety or depression was highly correlated with arrival status (refugee), sum of chronic diseases, and education (less than high school) ($p < 0.001$).

Chapter 5 Discussion

The aim of this study was to describe the health status and to measure the health-related quality of life of immigrant/refugee populations residing in Edmonton prior to their using the services of the Multicultural Health Brokers (MCHBS). Using data from the Immigrant and Refugee Health Survey (IHRS), where HRQOL was measured by the EQ-5D instrument, the study found that the reported HRQOL of economic class immigrants was significantly higher than that of the refugee population. Variables that were associated with reports of low HRQOL outcomes were the number of chronic diseases, gender (male), and low education.

The clientele of the MCHBS consists of immigrants and refugees from 15 ethnic communities, of which 10 participated in the IRHS. The main areas of the MCHBS services are pre- and post-natal care and early childhood health care, but they also function in all other family health areas mediating, interpreting, and case managing health care services.

Some of the characteristics of clients may have an impact on study results. Pre- and postnatal women (33% of study subjects) are, in general, considered to be healthy, but their need for the MCHBS services is often based on weak language ability in English or on cultural factors. As well, immigrants suffering from a sense of helplessness and with possible multiple health problems are more likely to approach MCHBS services than are "healthy" clients. The MCHBS setting provides an interesting foundation for research: MCHBS health professionals serve both economic class immigrants and refugees/refugee claimants, and both groups also include family class immigrants. This provides an excellent opportunity to compare these groups and also to fill some of the

gaps in the knowledge that we have about the HRQOL of refugees, who form a difficult group to study in usual population health surveys.

Previous Canadian and international studies indicated that refugees have certain health problems such as depression (Beiser & Hou, 2001; Hyman, Vu, & Beiser, 2000; Rousseau & Drapeau 2004), but to date much of this knowledge is based on mainly anecdotal evidence. In spite of their large sample sizes, the Canadian national survey (Statistics Canada, 2004) and community health surveys (Statistics Canada, 2004) do not provide specific information about refugees' health, because they do not separate refugees and immigrants. These surveys also do not provide linguistic information for many of the refugee groups.

Although the EQ-5D instrument is not translated into all the languages of recent refugee groups, and the sample size of this study was small, the MCHBS survey offers a valuable interpretive resource to collect data about the health of the refugee populations in Edmonton.

Main findings

The study subjects, who represent 10 ethnic communities, were mainly female (85%), and over half of the sample came to Canada as refugees. Their self-reported speaking and reading skills in English were in general quite low (about 30 on 0 - 100 VAS), with refugees having statistically significantly lower English reading skills. However, some of the respondents estimated their English skills to be quite high; this suggested that their expressed need for MCHBS service was sometimes based on culturally appropriate health care needs, rather than on language concerns.

More immigrants than refugees had a family physician. This can be explained by the fact that the immigrants and their communities have resided in Canada and Edmonton longer than most refugees have. Members of many established immigrant communities can also utilize health care services provided in their own language. In addition, immigrant communities have established networks that enhance opportunities to find a family physician. The refugees may lack these opportunities.

Almost half of the respondents did not have any chronic health condition that had been diagnosed by a health care provider. Mainly this effect resulted from the high proportion of pre- and postnatal subjects in the sample. The presence of chronic conditions was similar to that found in other Canadian immigrant studies (Dunn & Dyck, 2000; Kopec, Williams, To, & Austin, 2001; Perez, 2002).

Unmet health care needs were experienced by almost half of the respondents. The study showed that significantly more refugees had been in a situation where they needed health care but could not obtain it. This can partly be explained by the fact that refugees had more chronic diseases than the immigrants and thus needed more health care services. The degree of reported unmet needs in the study was much higher than in any other Canadian study (Chen, Ng, & Wilkins, 1996; Dunn & Dyck, 2000; Hyman, 2004), and it can mainly be explained by the high proportion of refugees. However, the immigrants also reported slightly higher unmet needs than in the other studies (Chen, Ng, & Wilkins, 1996; Dunn & Dyck, 2000). The subtly higher rates of this study can probably be explained by the characteristics of the study population: the clients of the MCHBS approach the Program because they do have unmet needs.

The majority of the subjects reported one or more visits to a physician/health care provider. This reflects a modest health care utilization pattern. Over half of the subjects reported ten or more annual visits to doctor, which may reflect the facilitation by the MCHBS as a mediator in utilizing health care services and access to physician. Wen, Goel, and Williams (1996) have also reported a slightly higher rate of health care visits among immigrants in Toronto than in the Canadian born population.

Health Status and Health Related Quality of Life of Immigrants and Refugees

The study shows that, in the EQ-5D dimensions, the total population did not have many problems in the mobility, self-care and usual activities categories. In the pain/discomfort dimension, 45% of the subjects indicated having some or severe problems, while in the anxiety/depression dimension, two out of three respondents had problems, and over half of them were at the extreme level.

When these EQ-5D scores were compared to those of the general population in Canada and other developed countries, it could be seen that the total sample had slightly higher rates of problems in mobility, self-care, usual activities and pain/discomfort, and much higher rates of problems in anxiety or depression. These higher rates, mainly in this one dimension, lowered the EQ-5D index score so that it was lower than for the general Canadian population (Szende & Williams, 2004). Comparison of the immigrant and refugee populations showed that the refugee population had statistically lower HRQOL levels than did immigrants. In the immigrant group the HRQOL levels were relatively high, e.g. the EQ-5D index scores were even better than in the Canadian general population.

The mean VAS score of the total sample was 62.49, which is much lower than the Canadian population mean score 80.35 (Szende & Williams, 2004, 22). The immigrant group had slightly higher VAS scores (83.71) than the general population, but the VAS scores in the refugee group (mean 47.80) were significantly lower than in the previous two groups. As noted earlier, some of the subject characteristics may explain the higher scores in the immigrant group, such as the high proportion of pre- and postnatal subjects in this group. As well, the above- average national VAS and EQ-5D index scores for the economic immigrant population support the notion of healthy immigrant effect.

Studies conducted by Chen, Wilkins and Ng (1996), Gee, Kobayashi and Prus (2004), Hyman (2001), McDonald and Kennedy (2004), and Newbold (2005) utilizing data from the national and community health surveys, indicated that recent immigrants experienced superior health compared to their Canadian counterparts, but that this health advantage declines over time. In the present study the time in Canada was not strongly correlated to HRQOL results.

Conflicting with these healthy immigrant results, Newbold and Danfort (2003), who used the HUI3, concluded that immigrants were more likely to report poor HRQOL outcomes than were Canadian-born individuals. They also indicated that the contributing factors to poor health outcomes may be found in the health determinants; low education and income, together with unemployment and old age, were more likely to be "unhealthy". The study of Kopec, Williams, To, and Austin (2001) also analyzed the immigrants in the NHPS data. They found that European, Asian and Hispanic/African immigrants reported more problems in the emotion dimension, and somewhat more in the cognition dimension, but in the pain area the rates were similar.

Interestingly, Gee, Kobayashi, and Prus (2003) found that recent immigrants who were 65 years or older had poorer overall health compared to longer term residents or Canadian born in this age group. Their study utilized data from the CCHS and it showed that the recent immigrants between 45 - 64 years of age had statistically significantly higher mean HUI ($p < 0.05$) than long-term immigrants or Canadian born, but over 65-year old recent immigrants had the lowest mean HUI. The study did not differentiate the immigrant classifications or compare the results with the number of chronic diseases, both of which in this study were shown to have significant impact on HRQOL.

One of the main findings of this study was that in the anxiety/depression dimension the immigrant population had the highest rates of problems measured in any general population studies. In Canada, 30% of the population indicates having moderate or extreme problems measured by EQ-5D, whereas this study showed over two times as many problems with anxiety or depression; and, almost all of this was caused by the very high problems in the refugee group.

The prevalence of postpartum depression of immigrants is unknown and it is difficult to study with commonly used instruments like the Edinburgh Postnatal Depression Scale. In this study, the high proportion of anxiety or depression is supported by the fact that 29.4% of the respondents who had undergone recent childbirth reported moderate or extreme anxiety or depression. The estimated rate of postpartum depression in Canada is 13% (Statistics Canada, 2005). Lack of a social support network has been demonstrated to be a risk factor for postpartum depression. Very likely, our study population experienced a lack of social support in their new country, at least at some level (Menon, 2002; Nankpi, 1996).

Among refugees, premigration experiences may explain high rates of mental health problems and the low overall HRQOL. In the immigrant and refugee populations, mental health problems are difficult to diagnose and treat because of cultural and language issues. Therefore, utilization of services is poor, and also the supply of these services is low.

Although the length of stay in Canada did not impact on HRQOL, the study found higher incidence reported in the anxiety /depression dimension among immigrants and refugees who had stayed 0-4 years in Canada. This was a similar finding to Beiser and Hou (2001), who found that the depression score of Southeast Asian refugees in Canada was significantly higher at 10 -12 months than just after migration or after one year, suggesting that certain phases of resettlement are characterized by a greater mental health risk. This phenomenon can explain the significantly higher anxiety or depression among newer arrivals in this study. Also, immigrants and refugees with less education and those with more chronic diseases were significantly more anxious or depressed. Presence of chronic diseases has also been found to have an impact on self-reported poor health and overall HRQOL in many studies (McDonald & Kennedy, 2004).

The study findings were contradictory to the findings of Ali, McDermott, and Gravel, (2004). These researchers studied whether the healthy immigrant effect applies to mental health and alcohol dependence of immigrants, and they concluded that, in particular, immigrants with 0-4 years of residence in Canada had lower rates of depression than native-born Canadians.

However, the results of this study concerning the mental health of refugees are similar to those found in two other studies: one study was conducted in Canada, the other

study was international (Beiser & Hou, 2001; Rousseau & Drapeau 2004). As well, by using a standardized instrument (SCL-25), Rousseau and Drapeau (2004) found significantly higher rates of emotional distress in immigrants and refugees residing in Quebec among those who had witnessed political violence and persecution. The study conducted by Beiser and Hou (2001) showed higher rates of depression among refugees with lower language skills and unemployment. Similarly, this study showed significantly higher rates of moderate or extreme anxiety or depression among the subjects with no speaking or reading skills in English. Also, a study conducted among Ethiopian immigrants and refugees found significantly higher rates of depression in these subjects compared to those from other countries of origin (Fenta, Hyman, & Noh, 2004). The study also found that the factors contributing to depression were experiences of premigration trauma, refugee camp, internment, younger age, and postmigration stressful events. International studies of Bosnian refugees presented similar findings: after 10 years of residing in a new country, those refugees who emigrated had significantly higher rates of traumatic symptoms compared to those who stayed. It is suggested that the higher rates may be explained by language barriers, prolonged asylum process, and loss of culture and support when refugees emigrate to a new country (Hunt & Gakenyi, 2004). These factors may affect negatively their psychological well-being.

The study showed that along with refugee status, the number of chronic diseases had a negative impact on the HRQOL. These factors may be correlated because refugees may emigrate even if they have health problems, whereas immigrants are selected from relatively healthy applicants. In any case, in the regression model, these two variables were shown to have an independent and significant impact on HRQOL.

Age, income, gender and length of stay in Canada did not have a statistically significant impact either on the EQ-5D index or the VAS score, when tested by nonparametric tests. However, the regression model showed that gender had an impact on the EQ-5D index score. This finding is difficult to explain as the data included relatively few males. A larger sample size is needed to analyze the possible gender differences. The subjects with high school or more education indicated significantly better HRQOL than did subjects with less than high school in both the EQ-5D index and VAS, but in the step-wise regression model it remained only in the VAS model. Higher education is expected to be beneficial concerning immigration; for example, better language proficiency or ability to learn a new language presumably eases acculturation as well as renders easier access to medical and other needed services.

Based on the data from all four cycles of NPHS, Newbold (2005) concluded the same: immigrants with less than high school education, as well as those with some post-secondary education, were at higher risk for transitioning to poor health than were more educated persons. On the other hand, many immigrants also experience under-employment after resettling, which can be a source of frustration and emotional problems. Furthermore, the study of Ethiopian immigrants and refugees residing in Toronto found that the risk of developing depression was associated with a lower level of education and unemployment (Fenta, Hyman, & Noh, 2004).

Study Strengths and Limitations

The EQ-5D instrument has been demonstrated to be a good instrument for the measurement of HRQOL in population health studies (Brooks et al., 2003). Because these studies are predominantly interested in quantifying the burden of diseases, and

monitoring disease-specific trends and comparisons between regions or populations, it was an appropriate instrument for the measurement of health and HRQOL in this study. It is difficult, though, to apply any survey with complicated terminology to the study of immigrants and immigrant subgroups. The EQ-5D provides a simple, "stripped-down" instrument with multiple culturally adjusted language versions; and, because it is widely used, the existing population norms enable international comparisons as well as comparisons between population subgroups and the general population.

The complicated structure of the Immigrant and Refugee Health Survey (Appendix B) may have limited the response rates, because it had to be completely translated and each form took at least half an hour to complete. However, the IRHS provided good background information for this study and also valuable information for the main study. Also, the questionnaire was developed in cooperation with the MCHBS and health care providers who were aware of the key issues in immigrant health.

Because the data in this study were collected indirectly through proxies, it is unknown how much influence the proxies had on respondents' answers and how accurate the translation was. In addition, all five dimensions of the EQ-5D, as well as the concept of health itself, can have different meanings in different cultures. In this study the clinical background information showed that the rate of mental health problems diagnosed by health care providers was quite high, and it is consistent with the findings of high rates of anxiety or depression in the EQ-5D. Mental health problems are known, diagnosed and treated in most of the countries: for example, the study about HRQOL of the caregivers of psychiatric patients in Sudan indicated that the 10th version of International Category of Diseases (ICD-10) is applied also in developing countries to diagnose both physical

and psychological diseases (Awadalla, Ohaeri, Salih, & Tawfiq, 2005). Similarly, the mental health problems diagnosed by ICD-10 were found in Vietnam, China, Pakistan, and India, implying that mental health issues exist worldwide (Chen, 2002; Nisar, Billoo, & Gadit, 2004; Steel, Silove, Phan, & Bauman, 2002). However, it is more difficult to estimate how individuals perceive and express depression, anxiety, and other mental health problems, because somatic symptoms may cause, or be expressed as, psychological symptoms (Alem, Jacobsson, Araya, Kebebe, & Kullgren, 1999; Kinon, 1999). In this study the VAS and EQ-5D index were strongly correlated and demonstrated low HRQOL in refugee subjects and those immigrants with at least one chronic disease. Accordingly, the subjects who scored high on the EQ-5D index had also higher VAS scores. The anxiety or depression dimension was strongly correlated with lower EQ-5D scores and VAS, indicating that problems in mental health are either causing, or resulting from, low HRQOL.

Although the study increases knowledge of the HRQOL of immigrants and refugees residing in Edmonton, it has several limitations. First, the sample size was small and results were applicable only for some immigrant and refugee subgroups. Secondly, the cross-sectional nature of the data collection provided information from the subjects only at one time point. In addition, using proxies in interviewing certain sub-groups may limit the study reliability since the accuracy of the verbal translation can not be ensured. However, it does provide baseline measurements for longitudinal follow-up and also new information about mental health issues of the refugees.

Recommendations for Health Care Providers and Future Research

The study results indicate that the health care system may not succeed completely in responding to the health care needs of new immigrants, especially in addressing mental health problems. This can be seen particularly in refugee groups. The health care system should consider educating more experts in immigrant mental and other health problems. The study also shows that many new immigrants do not understand and speak English well enough to express themselves, and to obtain health care services. The requirement for interpreters and cultural mediators is then well justified. MCHBS serves an important role for these immigrants by facilitating new immigrants' access to health care and community services. Community health nursing should also recognize the importance of cultural mediators, and more research is needed in order to find ways to deliver care to culturally diverse communities.

The study also demonstrates that the EQ-5D is a feasible measure to be used in studying this kind of immigrant population. Longitudinal studies would provide more profound knowledge about the changes in health status and HRQOL of immigrants and refugees at individual, community and population levels. Since the EQ-5D measured significant mental health differences, it could be used for aggregate level assessment of mental health problems of the populations. However, more detailed information is needed about the origins of these problems, e.g. about the effect of pre- and post-immigration events, cultural and social factors, and coping mechanisms.

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Appendices

- A. EQ-5D Questionnaire (Canadian English Version)
- B. Immigrant and Refugee Health Survey
- C. Multicultural Health Brokers' Service Brochure
- D. Letter of Permission to Access MCHBS Data
- E. Normal P-P Plot of EQ-5D Index and VAS Regression Standardized Residuals

EQ - 5D

Health Questionnaire

(Canadian English version)

By placing a check-mark in one box in each group below, please indicate which statements best describe your own state of health today.

Mobility

- I have no problems in walking about ☐
- I have some problems in walking about ☐
- I am confined to bed ☐

Self-Care

- I have no problems with self-care ☐
- I have some problems washing or dressing myself ☐
- I am unable to wash or dress myself ☐

Usual Activities (*e.g. work, study, housework, family or leisure activities*)

- I have no problems with performing my usual activities ☐
- I have some problems with performing my usual activities ☐
- I am unable to perform my usual activities ☐

Pain/Discomfort

- I have no pain or discomfort ☐
- I have moderate pain or discomfort ☐
- I have extreme pain or discomfort ☐

Anxiety/Depression

- I am not anxious or depressed ☐
- I am moderately anxious or depressed ☐
- I am extremely anxious or depressed ☐

EQ-5D-VAS Scale

To help people say how good or bad their state of health is, we have drawn a scale (rather like a thermometer) on which the best state you can imagine is marked 100 and the worst state you can imagine is marked 0.

We would like you to indicate on this scale how good or bad your own health is today, in your opinion. Please do this by drawing a line from the box below to whichever point on the scale indicates how good or bad your state of health is today.

Your own
state of health
today

Best
imaginable
state of health

100

90

80

70

60

50

40

30

20

10

0

Worst
imaginable
state of health

Appendix B Immigrant and Refugee Health Survey (IRHS)

Multicultural Health Brokers Co-op

Immigrant and Refugee Health Survey in Edmonton

Purpose of the survey:

The Immigrant and Refugee Health Survey will describe the health profile and utilization of health services and identify factors and circumstances that determine the health of the individuals served by the Multicultural Health Brokers Co-op. The information gathered from this survey will also define the health needs of newcomers to Canada in order to develop and plan appropriate primary health care services for them.

NO _____

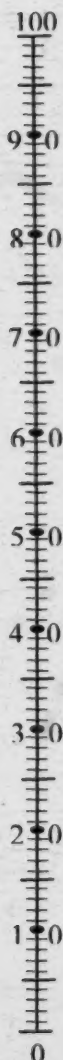
Reading and speaking skills in English

Fluent in English

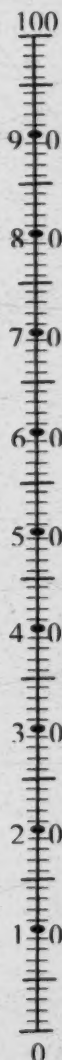
Excellent English
Reader

How good is
your spoken
English?
Choose a point
from the scale
on the right.

How good is
your reading in
English?
Choose a point
from the scale
on the right.



Does not Speak
English



Does not Read
English

Instruction to the Interviewer:

Encircle answers to the question and/or write responses on spaces provided.

I. Participant Profile

1. *Age (in years) _____

2. *Gender

Male

Female

3. *Place of Birth: _____

4. Place of Last Residence Before Coming to Canada

Village _____

Refugee Camp _____

City _____

5. How long did you lived there? _____

6. *Immigration Status

a. Permanent Residence

b. Refugee

c. Canadian Citizen

d. Visitor

e. Student

f. Other _____

7. *Year of Immigration to Canada _____

8. *Length of Residence in Edmonton _____ years _____ months

9. *Marital Status

a. Single

b. Married

c. Separated/Divorced

d. Common Law

e. Widowed

10. Who is living in the household with you?

Number of Children below 6 years old: _____

Number of children from 7 - 18 years old: _____

Number of children 19 years old and above: _____

Others living in the household _____

11. *Highest Level of Education _____ Where Obtained _____

12. Occupational status in Home Country

a. Employed or self employed

b. Retired

c. Homemaker

d. Mother

e. Student

f. Seeking work

g. Soldier, fighter

h. Other (specify) _____

Economic Circumstances

13. Occupation/Employment _____ in _____ Canada (List all jobs)

14. What type of home do you live in?

a. None

b. Shelter (group living)

c. Apartment

d. Connected house (town house)

e. Separate house (single/detached)

15. *Please circle the amount that best describes your annual income:

A. Less than \$15,000.

B. \$15,000 - \$24,999.

C. \$25,000 - \$38,000.

D. \$39,000 - \$50,000.

E. \$51,000 - \$70,000.

F. More than \$70,000.

16. Are you currently receiving any of the following (if yes, please indicate):

(a) Supports for Financial Independence (SFI)

(b) Student Finance

(c) Government Funding

(d) Funding from church or mosque

(e) Others _____

Social Support

17. Do you have relatives, friends or people you are connected with living in Edmonton?

Yes

No

18. Who would they be?

(a) Parents

(b) Siblings (Brother/Sister)

(c) Aunts/Uncles

(d) Others _____

19. When you have a problem, who do you usually go to?

(a) Spouse or significant other

(b) Children

(c) Other family member/ friend(s)

(d) Religious leader

(e) Community leader or elder

(f) Other, please specify _____

II. Health Care Experience in Home Country and previous residence

Tell us about what was it like back home when you were sick or ill.

20. When you were preparing to leave for Canada, did you have a medical examination?

Yes

No

21. If yes, What did the examination include?

- (a) X-ray
- (b) Blood tests, urine tests
- (c) Doctor/nurse examination
- (d) Only met with someone
- (e) Spoke with someone only _____

III. Health Care Experience in Canada

Let's talk about how you are taking care of your health in Canada.

22. *Since you arrived in Canada, have you ever been to a health clinic (outside of childbirth, if female participant)?

Yes No

23. If yes, who did you see and about how many times did you see him/her during the last year?

Nurse _____

Doctor _____

Other health care worker _____

24. Since you arrived in Canada, have you had to stay overnight in the hospital? Yes No

a. How many times have you stayed overnight in the hospital?

b. Have you had surgeries? Yes/ no. Please specify (type/year) _____

Preventive Health

25. Are you expecting a baby (are you pregnant)? Yes No

26. Have you recently had childbirth? Yes No

45. If yes, how long ago? _____

Medical/Health Condition

27. *Are you currently suffering from chronic diseases/ conditions? If yes, please indicate which of the following (Diagnosed by health care professional):

- a. Diabetes
- b. Arthritis
- c. Asthma/ bronchitis
- d. Heart problems including high blood pressure
- e. Anemia
- f. Chronic stomach ache or stomach/digestive problems
- g. Chronic headache, i.e. migraine
- h. Tuberculosis
- i. Hepatitis
- j. HIV/AIDS
- k. Vision problems/ eye diseases
- l. Emotional/mental problems
- m. Other, please specify _____

28. *Are you taking prescribed medication? Yes No

48. If yes, please specify _____

29. Do you use traditional medicine or/and treatment? Yes No

30. Do you use vitamins? Yes No

Use of Health Services

31. *Since arriving to Canada, have you ever been in the situation that you needed health care, but you didn't get help?

Yes No

32. Was that your choice (Did you choose not to seek help?) Yes No

33. Have you ever phoned Health Link?

Yes

No

34.* Has any of the following things influenced to your ability to use health services (go to the doctor, go

to the health clinic or hospital?) You can choose one or more options.

- (a) Language
- (b) Not aware of the system (where to go, who to see etc.)
- (c) Service I needed is not available
- (d) Money
- (e) Time (unable to make because of work or other duties)
- (f) Other, please specify _____
- (g) None

Connection with a multicultural health broker

35. How did you find out about the multicultural health broker?

- (a) Public Health Centre/Nurse
- (b) Friend
- (c) MCHB herself (I know her personally)
- (d) Other

Thank you for your time and participation!

* Indicates specific questions included in the present study analysis.



MCHB

Appendix C

Multicultural Health Brokers Co-operative Ltd.

Phone: (780) 423-1973 Fax: (780) 428-2748 Email: mchb@interbaun.com
10867 - 97 Street, Edmonton, AB T5H 2M6

*Connecting families and communities
to resources for health and well being.*



Mandate of the MCHB Co-op

"To support immigrant and refugee individuals and families in attaining optimum health through relevant health education, community development and advocacy support."

How we began, a brief history of the MCHB Co-op

The Multicultural Health Brokers Co-operative is a registered worker's co-operative with members from immigrant and refugee communities: Chinese, Vietnamese, South Asian, Filipino, Arabic-speaking, Spanish-speaking, and others. The group emerged out of a public health initiative in the early 90's to enhance maternal and infant health within immigrant and refugee communities. For the past eight years, we have been providing culturally & linguistically relevant prenatal education, post-natal outreach, parenting support, family liaison and community development support to immigrant and refugee families.

Since 1995, the Multicultural Health Brokers (MCHBs) supported over 4,000 immigrant and refugee families who are most often isolated because of cultural and linguistic barriers. We connect families to relevant programs and services during pregnancy or after childbirth. They receive information and emotional support during that critical point in their lives. The relationship between the families and the MCHBs generally continues as children grow older. We also assist parents during the years of early child development. Being attentive to the total life circumstances of the families, the MCHBs liaise and advocate for support and resources to the families in other aspects of their lives such as family relationship, housing, education, economic and food-security.

What We Believe: Principles of the MCHB Co-op

Like all co-operatives throughout the world, the MCHB Co-op is committed to:

- **Direct responsiveness and accountability:** We are responsible and accountable to the families and communities we serve;
- **Equity & social justice:** We strive to work for equitable access for those who are marginalized from resources and opportunities in society;
- **Democratic governance:** We participate fully in the operations and decision-making of the organization.

Services Available to Anyone at NO COST

What do we do

- Prenatal education
- Post-natal support
- Bi-cultural parenting education
- Early childhood development support
- Linguistic and cultural interpretation
- Translation of health education materials

How do we provide our services

- Home visits
- Telephone counseling & referral
- Hospital tours
- Community education
- Consultation concerning cross-cultural issues
- Mutual support group development
- Community organizing
- Advocacy support to individuals, families, groups and communities
- Cultural Competency Training

Who we are

Please contact individual Multicultural Health Brokers by calling the following #s:

Arabic

Iman Abdou 619-7692

Chinese (Cantonese)

Ada Lau 473-3629

Lydia Yip 483-0783

June Kon 436-8716

Chinese (Mandarin)

Ray Mei Liu 473-3583

Wei Chen 434-0061

Filipino

Estela Andaya 989-0965

South Asian (Punjabi, Hindi, Urdu)

Nasreen Omar 719-4618

Surinder Dhaliwal 917-1199 (Voice Pager)/

450-7474

Barinder Ghuman 407-6114

Ravi Gill 461-9999/490-6886

Spanish Speaking

Sarah Borquez 439-0948

Susana Runge 951-8522 (Voice Pager)

Vietnamese

Nhan Lu 468-2090

Rose Pham 476-4087

Mai Nguyen 999-4884

Le Thu Tran 497-0135

Cambodian

Nora Chan 920-8997

Eritrean & Ethiopian (Amharic & Tigrigna)

Tigist Dafla 920-8995

Azeb Tekle 920-8994

French-speaking African

(French, Swahili, Kirundi, Kinyarwanda)

Chantal Hitayezu 886-0548

(French, Swahili, Lingala, Tshiluba)

Jeannette Muzinga 886-0549

Kurdish (Kurdish, Arabic)

Sabah Tahir 920-8990

Jalal Abbas 619-7963

Persian & Turkish (Afghani & Iranian)

Firozeh Penhani 920-8999

Sierra Leone (French, Mende, Creole, Kissi)

Yatta Foryoh 920-8991

Somali

Saida Khalif 910-8926

Sudanese (Sudanese dialect, Arabic)

Killa Ibrahim 920-8992

---Funding provided by Capital Health Authority and Region Six Child & Family Services---

For general information, please contact:

Phone: (780) 423-1973

Fax: (780) 428-2748

Email: mchb@interbaun.com

Address: 10867 - 97 Street, Edmonton, AB T5H 2M6

Appendix D Letter of Permission to Access MCHBS Data

Multicultural Health Brokers Co-operative Ltd.

10867 - 97 Street, Edmonton, AB, T5H 2M6

Phone: (780) 428-2748

Permission to Use the Data of the Multicultural Health Brokers Co-op.

We give permission to Jaana Ohinmaa, RN, MN Candidate, to use the authorized data of Multicultural health Brokers Co-op for the purpose of completing her thesis of Masters in Nursing. The data includes "Immigrant and Refugee Health Survey in Edmonton" collected by the Multicultural Health Brokers.

Lucenia Ortiz, Ph.D.
Co-Executive Director
Multicultural Health Brokers Co-op
Phone: (780) 423-1973

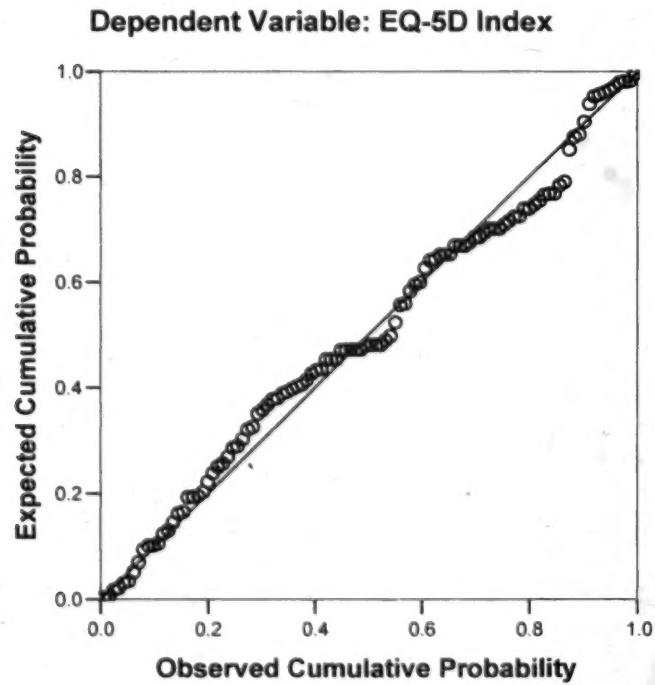
May 10, 2005
Date

Yvonne Chiu,
Co-Executive Director,
Multicultural Health Brokers Co-op,
Phone: (780) 430-6253

May 10, 2005
Date

Appendix E Normal P-P Plot of EQ-5D Index Regression Standardized Residuals

Normal P-P Plot of Regression Standardized Residual



Normal P-P Plot of Regression Standardized Residual

